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Practice Guidance

One Planet Development

Technical Advice Note 6

Planning for Sustainable Rural Communities

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Wales Planning Policy Development Programme

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One Planet Development Practice Guidance

Cover photo

Roundhouse, Brithdir Mawr,
Pembrokeshire, courtesy of Tony Wrench

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I. INTRODUCTION

Purpose of this guidance

1.1 This guidance describes the planning requirements for One Planet Developments (OPD) in the open countryside. Planning Policy Wales explains that development in the countryside should be located within and adjoining settlements and that new building in the open countryside away from existing settlements should be strictly controlled (4.6.8).

1.2 This guidance therefore addresses One Planet Development in rural locations outside existing settlements. The open countryside includes areas of dispersed small villages and hamlets and land on the edge of settlements which would not otherwise be considered for development.

1.3 Planning Policy Wales and Technical Advice Note (TAN) 6 Planning for Sustainable Rural Communities are the sources of policy for One Planet Development in the open countryside. This guidance is a companion to TAN 6, covering all the requirements for a planning application for One Planet Development. It focuses on the Management Plan that must accompany all One Planet Development planning applications and the Ecological Footprint Analysis (EFA) that sits alongside the Management Plan.

1.4 The guidance provides practical support for applicants putting together proposals for One Planet Development in the open countryside and for planning authorities assessing them. The requirements for One Planet Development are rightly stringent, and applicants need to appreciate this and fulfil them, while planning authorities need to ensure that they are met. This is a relatively new area of policy for everyone, so explanation and examples are provided.

One Planet Development – the policy context

1.5 The Welsh Government's Sustainable Development Scheme, 'One Wales: One Planet has an objective that within the lifetime of a generation, Wales should use only its fair share of the earth's resources, with its ecological footprint reduced to the global average availability of resources of 1.88 global hectares per person (the global availability of resources in 2007). This is a very challenging but necessary target.

1.6 This objective is taken forward in Planning Policy Wales[1] that defines One Planet Development as "development that through its low impact either enhances or does not significantly diminish environmental quality. One Planet Developments should initially achieve an ecological footprint of 2.4 global hectares per person or less in terms of consumption and demonstrate clear potential to move towards 1.88 global hectares over time" [9.3.11].

1.7 Planning Policy Wales goes on to note that "land based One Planet Development in the open countryside should provide for the minimum needs of

1 Planning Policy Wales 4th Edition February 2011 paragraph 9.3.11

the inhabitants in terms of income, food, energy and waste assimilation over a period of no more than five years from the commencement of work on the site. This should be evidenced by a management plan produced by a competent person(s). The management plan should set out the objectives of the proposal, the timetable for the development of the site and the timescale for review. It should be used as the basis of a legal agreement relating to the occupation of the site, should planning permission be granted" [9.3.12].

1.8 TAN 6 then develops the above requirements, as discussed through the remainder of this guidance.

Essential characteristics of One Planet Development in the open countryside

1.9 TAN 6, reflecting Planning Policy Wales, lays out a set of essential characteristics that all One Planet Developments in the open countryside must have. These are that One Planet Developments must:

- Have a light touch on the environment – positively enhancing the environment where ever possible through activities on the site.
- Be land based – the development must provide for the minimum needs of residents in terms of food, income, energy and waste assimilation in no more than five years.
- Have a low ecological footprint – the development must have an initial ecological footprint of 2.4 global hectares per person or less with a clear potential to move to 1.88 global hectares per person over time – these are the Ecological Footprint Analysis benchmarks for all One Planet Development (para 2.11).
- Have very low carbon buildings – these are stringent requirements, requiring that buildings are low in carbon in both construction and use.
- Be defined and controlled by a binding management plan which is reviewed and updated every five years.
- Be bound by a clear statement that the development will be the sole residence for the proposed occupants.

1.10 To meet these essential characteristics residents of One Planet Developments have to live quite differently (much more sustainably) than is the norm in the 21st century. One Planet Development therefore is not just describing a physical development. It is describing a way of living differently where there is a symbiotic relationship between people and land, making a reduction in environmental impacts possible. The management plan for a One Planet Development, therefore, describes both the nature of development and the way of life that will be pursued in association with that development.

One Planet Development and minimum needs

1.11 One Planet Development in the open countryside is required to meet the minimum needs of residents in terms of food, income, energy and waste assimilation from the site. This means that One Planet Development should be broadly self-sufficient, in ways which have a low environmental impact.

1.12 Minimum needs mean slightly different things for each of food, income, energy and waste assimilation.

1) For **food** it means that most of the food needs of all the residents on the site should come from the site (grown and reared) or be purchased using income derived from other products grown (such as timber) or reared on the site. This is discussed further in paras 3.24 – 3.26.

2) For income it means that the site needs to generate enough income to pay for the basic requirements of all the residents on the site which the site is unable to provide directly. These are clothes, travel, IT / communications, Council Tax and the food needs not covered by (1) above. This is discussed further in paras 3.27 – 3.28.

3) For energy and waste assimilation it means that the site should produce all of the energy needed by the residents of the site (including that needed for any processing) and should assimilate all of the waste the site produces other than very small amounts of either non- biodegradable or hazardous wastes (such as batteries) where alternatives are justified on grounds of greater sustainability. The majority of water needs should also be met from the site. The minimisation of energy and water use, and the minimisation of waste which cannot be assimilated on the site is a pre-requisite to minimising needs and achieving a low Ecological Footprint. For further information on energy and water see paras 3.54 – 3.61 and for waste see paras 3.69 – 3.74.

One Planet Development and the planning system

1.13 One Planet Development in the open countryside is a new area of rural policy of which there has been relatively little experience to date. It is a justified exception to the strict control of development in the open countryside and is only allowed if the demanding requirements of TAN 6 and this guidance are met. One Planet Development proposals are therefore closely scrutinised.

1.14 All applications for One Planet Developments in the open countryside need to be supported by robust evidence contained in a management plan, produced by a competent person(s) [TAN 6: 4.16.1]. As a new area of policy it is important:

- For prospective One Planet Developers to engage with the planning authority from the outset to discuss emerging proposals. These discussions should clearly establish the policy basis for their eventual determination and how the proposals will address this to the required level of detail across all issues. For some time now it has been considered good practice for planning authorities to offer prospective applicants pre-application advice so as to streamline the process of determining subsequent applications. Pre-application discussions

and advice are likely to be of great assistance to both applicants and planning authorities and are strongly encouraged[2].

- For the management plan to build understanding and trust between the applicant and the planning authority, providing sufficient information for the development to be clearly understood, as explained through this guidance. The management plan provides the contract between the One Planet Developer and the planning authority.
- For the management plan to identify that the application is for a composite land use, of which human occupation is an integral part – thus establishing a clear understanding of the overall nature of the development.
- For the very low carbon nature of any new built elements (compared to conventional building) to be identified through carbon analysis, rather than reference to the Code for Sustainable Homes. The emphasis should be on the distinct and very sustainable nature of these developments with their very light touch on the environment, including in construction.
- For there to be a programme of monitoring with a clear exit strategy should the development fail to achieve the essential characteristics of OPD (para 1.9).

1.15 **Applicants should also be aware that the need for Building Regulations approval for certain** structures is no different to that in any other location (**see paras 3.91 – 3.94).**

A single OPD dwelling (Ourganics)

Types of One Planet Development in the open countryside

1.16 One Planet Developments may take a number of forms. They can be single homes, co-operative communities or small settlements in their own right. Nevertheless, there are five basic types of One Planet Development in the open countryside.

2 Some local planning authorities may charge for pre-application advice

Basic types of One Planet Development:

Single dwelling	single household self-sufficiency based
Land based enterprise	producing agricultural holding strong self-sufficiency and market-facing
Small group of dwellings	small group of households self-sufficiency based limited shared facilities / activities
Small planned community	small group of households self-sufficiency based organised around shared facilities / activities economies of scale and cooperation
Ecovillage (larger planned community)	larger group of households strong self-sufficiency planned around shared facilities / activities economies of scale and cooperation greater diversity of residents

1.17 One Planet Development in the open countryside need not be free-standing – it can be linked to a village or hamlet. Where this happens they can assist each other's' sustainability performance.

1.18 In the larger forms of One Planet Development, residents may share a greater diversity of activities according to the design of and management plan for the site. However, it is essential that the number of occupiers is commensurate with what the site can support and that taken together they still meet the requirements of One Planet Development in the open countryside, including that for a very low Ecological Footprint.

1.19 It is also important to note that TAN6 requires in para 4.15.2 that " Where One Planet Developments involve members of more than one family, the proposal should be managed and controlled by a Trust, co-operative or other similar mechanism in which the occupiers have an interest".

1.20 A variation of One Planet Developments is **loose networks**. These networks and affiliations will be of many forms and therefore are simply a variation of the One Planet Development types noted above. Networks and affiliations may be anything from a tool-sharing ring to business or trading networks, such as a milk processing network to enable the processing of milk products. These may be valuable in generating income and improved marketing. But in all these cases each OPD development in the network will need to meet all the essential characteristics of OPD in its own right. They will need to be supported by their own management plan.

Choosing a site

1.21 The special nature of One Planet Developments in the open countryside means that not all sites will be suitable. Particular considerations in the choice of site are:

- Will the site be able to meet the minimum needs of its residents (para 1.11 – 1.12) in terms of both productive capacity and size?

- Are those parts of the site that will be used for residential development and horticultural production well screened from their surroundings or capable of being screened through tree and woodland planting or other means characteristic of the locality (para 3.47)?

- Are there opportunities to conserve and enhance the biodiversity, cultural heritage and landscape of the site, adding to its environmental capital (para 3.37?.

- Does the site lie sufficiently near to public transport (such as a local bus service) potentially reducing reliance on the private car?

1.22 Sites of high ecological or landscape sensitivity may not be suitable as OPD activities could have unacceptable negative impacts unless these sensitivities are carefully conserved and enhanced.

2. INTRODUCING THE MANAGEMENT PLAN AND ECOLOGICAL FOOTPRINT ANALYSIS (EFA)

2.1 In this guidance a clear distinction is drawn between:

- The management plan which defines the nature of One Planet Development proposals for a site; and
- The Ecological Footprint Analysis (EFA) which is the tool by which the Ecological Footprint of the occupants on the site is assessed both at the outset and as part of on-going monitoring of the management plan. The results of the EFA will be reported in the management plan.

One Planet Development: Management Plan purpose and content

2.2 The management plan provides the evidence that the proposals meet the exceptional nature of One Planet Development in the open countryside. It:

- Sets out the objectives and defines the design strategy / proposals for the site and how people will live there.
- Assesses, in association with the EFA, if the essential characteristics (para 1.9) and qualifying criteria for OPD are met.
- Identifies how the development will be phased, when habitation of the site will start, and whether temporary accommodation will be required at the outset.
- Provides the basis for on-going monitoring and review of the development to ensure that it continues to meet all necessary criteria and fulfils its original objectives.

2.3 The management plan content is illustrated in **Figure 1** while **Figure 2** sets out the individual management plan elements in more detail, illustrating their relationship with the Ecological Footprint Analysis.

2.4 The full content of the management plan is described in **Chapters 3, 4 & 5**.

Figure 1: Management Plan outline

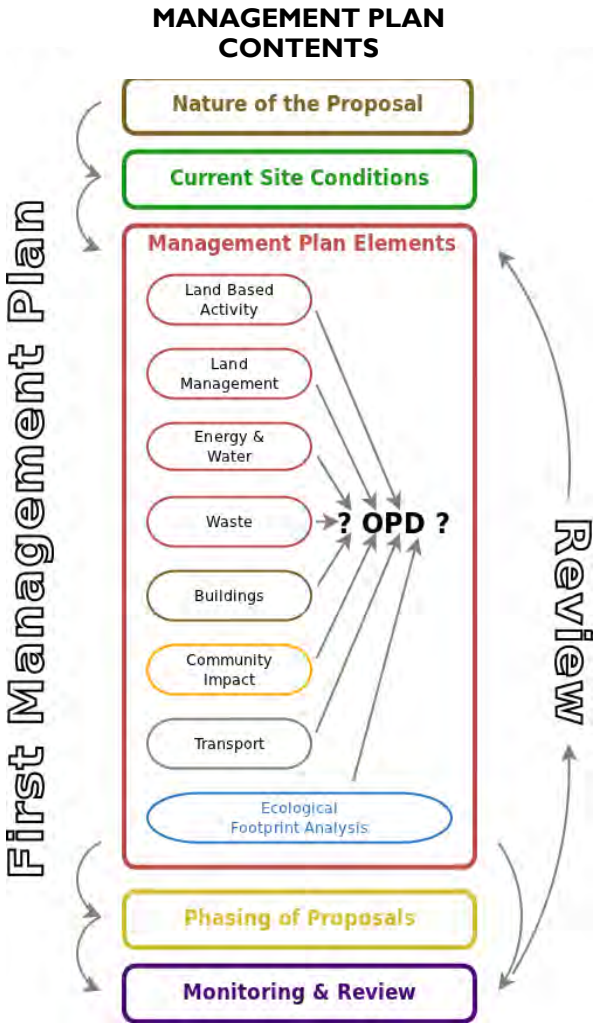
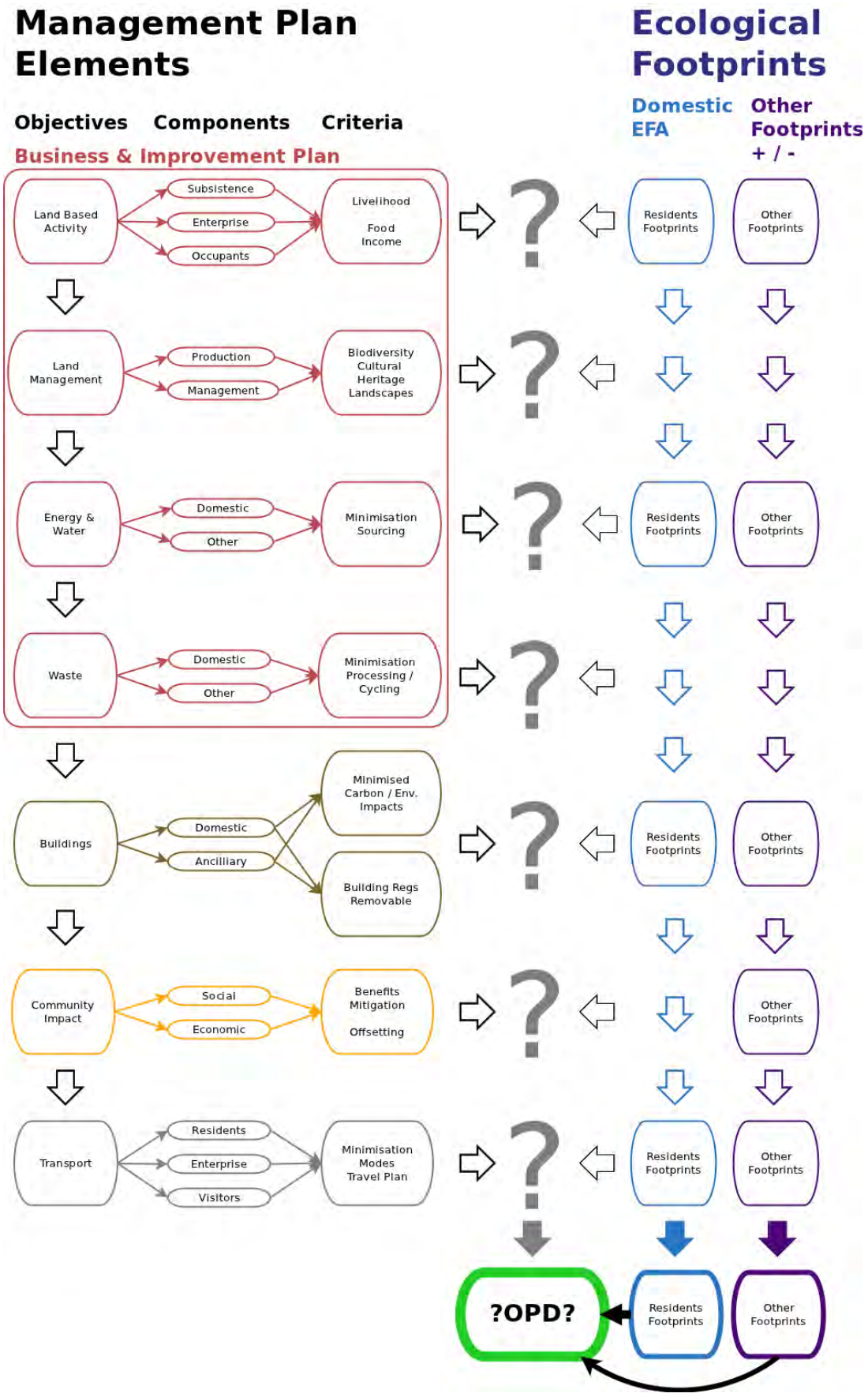


Figure 2


Management Plan Elements
Ecological Footprints
Objectives
Components
Criteria
Domestic EFA
Other Footprints + / -
Business & Improvement Plan
Land Based Activity
Subsistence
Enterprise
Occupants
Livelihood
Food
Income
Land Management
Production
Management
Biodiversity
Cultural
Heritage
Landscapes
Energy & Water
Domestic
Other
Minimisation
Sourcing
Waste
Domestic
Other
Minimisation
Processing / Cycling
Buildings
Domestic
Ancilliary
Minimised Carbon / Env. Impacts
Building Regs Removable
Community Impact
Social
Economic
Benefits
Mitigation
Offsetting
Transport
Residents
Enterprise
Visitors
Minimisation
Modes
Travel Plan
Residents Footprints
Other Footprints
?OPD?

Main elements of the management plan

2.5 Each of the main elements of the management plan is described in Chapter 3. For each of these elements (the left-hand cells in **Figure 2**), the following information needs to be provided in the management plan (Box 1).

Content of the main elements of the management plan **Box 1**

1. ***Objectives*** *f*or that element
2. A description of the different ***components*** (activities) required to meet these objectives (the lozenges in Figure 2).
3. How the ***qualifying criteria*** for these components (activities) will be met (para 2.7).
4. How this element of the management plan will be ***monitored,*** identifying targets (what needs to be monitored) and indicators (how the target will be monitored i.e. the data that needs to be collected).
5. The data needed to feed into the ***Domestic Ecological Footprint Analysis*** and to assist in on-going monitoring (the *Blue* cells in Figure 2 and para 2.9). This only relates to those elements which will form part of the Ecological Footprint Analysis, namely: Land Based Activity, Energy and Water, Buildings, and Transport. It specifically relates to purchases of consumable goods and purchases of services
6. Other data or actions that indicate a potential reduction (or increase) in the ***Other Ecological Footprints*** arising from the development both on site and /or in the wider local community (the *Purple* cells in Figure 2 and para 2.14).

2.6 All of the above are critical to the achievement of a successful management plan.

One Planet Development qualifying criteria

2.7 In Chapter 3 the **qualifying criteria** for each of the main elements of the management plan are identified. These qualifying criteria divide into:

- e*ssential criteria* all of which have to be met and together ensure that the essential characteristics of One Planet Development are achieved (para 1.9); and
- *contributory criteria* that demonstrate the additional credentials of any One Planet Development.

2.8 These criteria aim to bring clarity to both applicants and planning authorities and avoid ambiguity as to whether the key characteristics (para 1.9) of One Planet Development are being met.

One Planet Development: Ecological Footprint Analysis (EFA)

2.9 Ecological Footprint Analysis (EFA) is a relatively well developed indicator tool of the sustainability of human activities in terms of their impact on the carrying capacity of the planet. It provides a simple measure of the impacts of a person's activities measured as the 'global hectares' needed to support them, based on an assessment of *household consumption*.

2.10 In 2007 there were 1.88 global hectares (gha) available to each person on earth. In the western world personal footprints far exceed this figure. Reflecting that 1.88 global hectares per person is exceptionally hard to achieve in the developed world, TAN 6 requires that the initial footprint of residents of One Planet Developments in the open countryside is set at 2.4 global hectares per person, with clear potential to move towards 1.88 global hectares over time.

2.11 An EFA generates an indicator, not an absolute measure. Experience to date has shown that that there is typically a +/-15% sensitivity band in data entry and adjustments to be taken into account in an EFA. So although a very important criterion in assessing OPD in the open countryside and a strong measure of sustainable living, it is not an absolute measure. It is therefore only one of a number of criteria to be taken into account for One Planet Developments (see also paras 4.17 – 4.21 & para 4.25).

2.12 Ecological Footprint Analysis results should state the per capita footprint for each OPD household and the average per capita EFA for the development as a whole (where there is more than one household) (para 4.12).

2.13 **Timing:** Reflecting the overall requirements of TAN 6 (para 1.9) the EFA requirements are that (a) the application proposals demonstrate that the inhabitants will have an Ecological Footprint working towards 2.4 gha per capita at the time of first habitation on the site and with a clear ability to achieve 2.4 gha per capita by year 5 after habitation; (b) that 2.4gha is achieved by year 5; and (c) that thereafter the development is achieving a footprint below 2.4 gha[3] (para 4.14).

Other footprints – OPD businesses and the wider community

2.14 An EFA only takes account of the consumption of goods and services by *resident*s. It does **not** take account of: (a) the ecological footprint of business activities of OPD residents (on and off the site) which may have a travel component; (b) the ecological Footprint of volunteers and visitors to the site; and (c) the effects that One Planet Developments may have on the footprints of the wider community. (a) and (b) may have a negative impact on overall footprints (e.g. by increasing fossil fuel use by the business of the OPD dweller) while (c) may have a positive effect on overall footprints (e.g. as a result of a reduction in community food miles and a reduction in the community use of non-renewable energy, both of which have footprint impacts).

[3] The ultimate target of 1.88 gha per person is, at the moment, very hard to achieve for One Planet (or any other form of development) without major changes in Welsh society and the Welsh economy. The ability to move below 2.4 gha in time is, for now, more realistic than achieving 1.88 gha

Other footprints **Box 2**

OPD development can affect the footprints of other people in positive and negative ways.

Potential positive impacts include the supply of low input foods such as fruit and vegetables, meats, fish, eggs, and dairy products to local communities, and timber both as a fuel and construction material. Renewable electricity produced on site and exported to the grid can have wider-spread benefits.

Potential negative impacts include those of on-site enterprises and of visitors (though enterprises may also have positive impacts such as those above). These include travel and the use of energy and materials.

2.15 These other footprint effects cannot be assessed in the same way as residents' footprints as there is no proven tool for this. Nevertheless, as these effects can be significant they should be taken into account in the assessment of the proposals, even if specific figures cannot be attached to them. From the planning perspective they will be a material consideration in determining the planning application (para 4.25).

2.16 Any proposals to increase carbon sequestration and storage on the site should also be identified, although also lying outside Ecological Footprint. Analysis.

How to use this guidance

Applicants preparing a One Planet Development management plan

2.17 By working through the sections of the guidance provided in Chapter 3 - 5, prospective applicants for a One Planet Development in the open countryside (or their advisors) should be able to:

- Prepare a management plan that defines and controls the development.
- Establish whether their proposals meet the essential characteristics (para 1.9) of One Planet Development i.e. meets all necessary qualifying criteria (para 2.7).
- Provide all the necessary data for the Ecological Footprint Analysis and for the assessment of 'other footprints'.
- Report on the results of the Ecological Footprint Analysis and of 'other footprints' (Chapter 4).

2.18 Applicants are encouraged to follow the structure of this guidance for their management plans, and to support their applications with whatever extra detail is necessary for a full understanding of their proposals. This means that applications will be more straightforward to assess, and genuine One Planet Developments will be easier to recognise.

Assessing One Planet Development applications

2.19 Laid out in the way proposed, the structure of the management plan should ensure that the planning authority has a clear and justified account of the proposals, allowing determination of whether the planning application should be approved. The critical elements in this decision will be:

- The overall character of the development, taking account of the current nature of the site and the proposer's objectives for the site.
- Whether all essential criteria for One Planet Developments have been met and what additional OPD credentials are shown under the contributory criteria (para 2.7) Development can meet these criteria in a variety of ways and where they are particularly strong, in terms of performance, affordability, innovation, or wider benefit, this should be taken into account.
- Whether the proposals pass the EFA test for One Planet Development. The data identified through the management plan will make up the overall EFA, and so produce the final EFA figure which is a central test of One Planet Development in the open countryside.
- The effect that the proposals are having on 'other footprints' including those of OPD businesses and those of the wider community.
- An itemised programme for the delivery of the management plan over the coming five years.
- A clearly identified programme of monitoring that will monitor whether the ambitions for the site are being delivered.

2.20 A good management plan should be rich in information on all of these points. Overall, One Planet Development in the open countryside should fulfil the essential characteristics of One Planet Development (para 1.9) in ways which benefit rural Wales. The final decision will be a matter of whether the proposed development clearly meets the essential criteria for OPD, The contributory criteria can provide further support to the overall case for an OPD proposal.

Control and monitoring of successful applications

2.21 If a proposal is approved it is important that it is properly monitored and controlled over time. The management plan should contain measures for monitoring and provisions for what will happen if things go astray – control. The means by which each element of the management plan should be monitored is laid out in Chapter 3. If the management plan does not adequately address monitoring and control then it is deficient and the requirements of One Planet Development are not met. There are two mechanisms that local planning authorities can use to ensure proper monitoring and control of approved One Planet Developments – planning conditions or legal agreements. These are applied at the time that the planning permission is granted. Planning conditions or legal agreements (i.e. section 106 agreements) should be used to tie the fulfilment of the management plan to the planning permission. Section 106 agreements should be used to tie dwellings to the land, ensuring that land is not separated from the development at a later date. This is important in that if the dwelling is

separated from the land, then the justification for the One Planet Development as a whole is lost.

The first and subsequent management plans

The first management plan

2.22 The purpose of the first management plan for the site (which will accompany the planning application) is to describe the condition of the site now, the proposed site strategy / design and how it will be implemented (outlined in para 2.2 and set out in Chapter 3, 4 and 5 of this guidance).

Subsequent management plans (reviewed once every five years)

2.23 The five-year management plan review provides the opportunity to update the management plan, responding to the results of monitoring and potentially changing circumstances.

2.24 The structure of subsequent management plans will be the same but their focus will shift to:

- First, reporting on what has been achieved over the preceding five years, updating the site assessment (i.e. what is on site now after five years) and reporting on the achievement of the objectives and targets identified in the first management plan against the individual plan elements i.e. clearly setting out the results of monitoring.
- Second, looking forward and describing the strategy for the site over the coming five years. It will identify the activities against each element of the plan, following the same format as in Chapter 3 of this guidance. These may be activities rolled forward from the last plan, actions to make good identified failures, and new initiatives. As before the emphasis will continue to be on meeting the qualifying criteria and having a programme of on-going monitoring. This should be accompanied, as before, by a phased programme of activities.

2.25 More details on monitoring and subsequent management plans are set out in Chapter 5.

3. THE INDIVIDUAL ELEMENTS OF THE MANAGEMENT PLAN

3.1 This Chapter works sequentially through the different elements of the management plan, starting with the Summary, Baseline, and Design / Strategy, followed by the main elements of the management plan.

Summary

3.2 This will be the last section of the management plan to be written but should appear first. **It will provide an overview of what the management plan is intending to achieve for the site, and a synopsis of the contents of the management plan.**

Baseline

3.3 All proposals need to be set within the context of the site's location and current condition (before implementation of the proposals). The baseline description should describe the site's:

- Location
- Area and shape
- Boundaries (what defines the different site boundaries)
- Context / adjacent land uses
- Tenure (owner occupier / leasing arrangements)
- Existing on-site services
- Site access arrangements (vehicular and pedestrian).

3.4 It should provide an audit of:

- *Physical*: Geology, topography and soils (including agricultural land classification).
- *Biodiversity*: Broad habitats present especially habitats identified in the Local Biodiversity Action Plan and records of important flora and fauna (species) and their abundance on the site and in the immediate vicinity, again especially those noted in the Local Biodiversity Action Plan (seek the advice of the local Biological Records Centre and the Wildlife Trust).
- *Cultural Heritage*: Any known sites of cultural importance including below ground archaeological sites, earthworks and ruins, and living history, such as hedgerows marking important historic boundaries on the site and in the immediate vicinity.
- Existing buildings and structures on the site, their rough date (if known) and their main construction materials.
- *Landscape*: Landscape features on the site and in the immediate vicinity

(such as hedgerows, scrub, woodland and shelter belts), and of key views into the site from public vantage points (roads, lanes and public rights of way).

- Past land use (if known).
- Present land use (of each field, if more than one).
- Statutory Designations on the site and in the immediate vicinity:
  - Biodiversity – Special Areas of Conservation (SACs)[4] and Special Protection Areas (SPAs)[5] which are both of international importance and are designated by CCW; Sites of Special Scientific Interest (SSSIs) again designated by CCW because of their national importance for the conservation of habitats and species (all SACs & SPAs will also be an SSSI); and non-statutory Wildlife Sites identified by the Wildlife Trust / Local Authority;
  - Cultural Heritage – Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Registered Battlefields all identified by Cadw and Conservation Areas identified by the Local Authority.
- Landscape features on the site and in the immediate vicinity (such as hedgerows, scrub, woodland and shelter belts).
- Existing transport generated by the site and its transport connections.

3.5 The location and extent of each of the above is best illustrated on one or more annotated maps, ideally illustrated with photographs of the features being described.

3.6 In the first instance, the best source of information will be LANDMAP which has now been prepared for nearly every local authority area in Wales:

- Biodiversity is covered by the Landscape Habitats layer of LANDMAP. If something of interest is suspected it will also be worth contacting your local Wildlife Trust http://www.wildlifetrustswales.org/english/localtrust.htm and reviewing the Local Biodiversity Action Plan.
- Sites of cultural importance will be covered by the Historic Landscape layer of LANDMAP. In addition, if anything of interest is suspected it will be worth contacting the local authority archaeologist and reviewing the Sites and Monuments Record.

3.7 It is also important to understand the landscape of the area and the site, noting:

- If the site lies within a National Park, Area of Outstanding Natural Beauty

[4] SACs are designated under Article 3 the European Habitats Directive for conserving habitat types and species listed in Annexes 1 and II of the Directive as amended).

[5] SPAs classified in accordance with Article 4 of the EC Birds Directive to protect rare and vulnerable birds

(AONB) or Heritage Coast.

- The character of the local landscape within which the site sits. The Visual and Sensory Layer of LANDMAP will provide a description of the wider landscape.
- How the site is viewed from surrounding areas – is it prominent in views from public vantage points e.g. roads and public rights of way or is it hidden by woodland and /or landform?
- The landscape of the site itself – is it typical of the surrounding landscape or, if different, how does it differ?

3.8 Important landscape, habitat and cultural features close to the sites should be noted to help understand how the site fits in its wider context and how it can contribute to broader objectives, such as the enhancement of wildlife corridors.

Design / Strategy

3.9 A Design or Strategy can be a useful working document for the One Planet Developer in which they sum up their proposal and how it will 'work'. It can provide the overall framework for the management plan which is then delivered through its separate sections, as described in the remainder of this Chapter and Chapters 4 and 5.

3.10 This introductory 'Design / Strategy' section of the management plan should paint a picture of the overall proposals for the site, their defining features and characteristics, responding to the baseline character / condition of the site. This is the opportunity to clearly and succinctly set out the objectives for the site and its potential future. A (drawn) master plan will usually be necessary as a valuable way to summarise the Design / Strategy.

3.11 Permaculture and other approaches emphasise the importance of a design (a) in assessing a site (including establishing the baseline); (b) in establishing the principles and ethics for the site's development and use; and (c) how this might be controlled and monitored so that the design or strategy can be steadily improved. Permaculture, in particular, has a long association with development likely to meet the requirements of One Planet Development due to its intrinsically holistic nature.

3.12 This Design / Strategy section should set out:

- The overall distribution of land uses and activities on the site and how they link and interrelate.
- The number of households that will be accommodated, the ability of the site to sustain them, and the need for them to work the land or otherwise contribute to the running of the site.
- The mechanisms for the overall management of the site – both activities and the responsibility of residents for these.
- The mechanism by which the occupiers have an interest in the land where the

development involves members of more than one family (para 1.19),

- The outline programme for the development of the site although, given its importance, this will also be picked up in a dedicated section at the end of the plan.

3.13 All of these will then be developed through the remainder of the management plan.

MAIN ELEMENTS OF THE MANAGEMENT PLAN

3.14 The management plan then moves into the main elements as set out in TAN 6 and illustrated in **Figure 2**.

Business and Improvement Plan

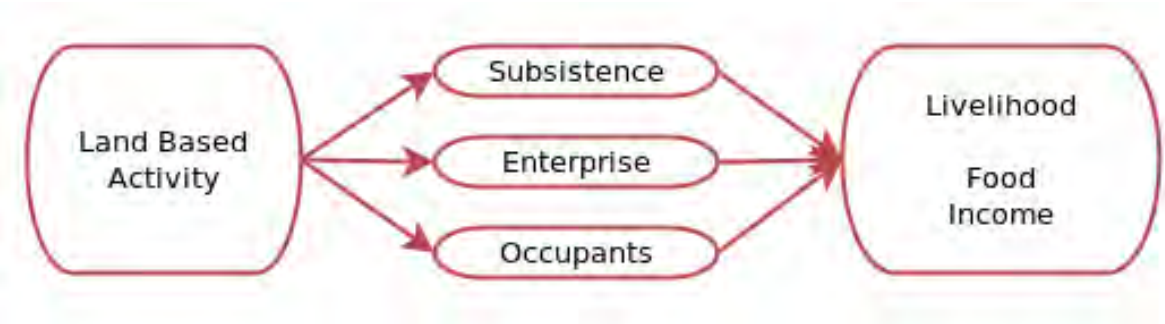
3.15 This is made up of a number of elements:

- Land Based Activity
- Land Management
- Energy and water
- Waste assimilation

Each of these is treated separately in what follows.

3.16 The Business and Improvement Plan is essentially the core of the overall Management Plan. It sets out the integrated system by which people and land will combine to make a reduction in environmental impact possible. It therefore provides the fundamental justification for the development. It should describe how people living on the site are able to reduce their environmental impact by meeting their everyday needs from the site, while at the same time enhancing the environmental capital of the site by their activities. This is a symbiotic relationship, reflected in management approaches such as permaculture and its relatives. Thus there has to be a proven functional relationship between the two within a broader system for the management of the site as a whole.

Land Based Activity



What TAN 6 requires

- That land use activities on the site should be able to provide directly for the minimum needs of its occupants in no more than five years in terms of income and food. The Management Plan should quantify how these minimum needs can be obtained directly from the site [4.15.2, 4.16.1, 4.17.1].
- That the need to live on site is justified and that the number of occupants has a clear relationship to (a) the site's ability to sustain them; (b) the smooth running of the venture; and (c) the return that is gained [4.16.1, 4.17.1].
- That the site should be the sole residence of the occupants [4.17.1].

Objectives

3.17 Objectives for One Planet Development in the open countryside need to recognise that proposals have to be land based, providing all residents' minimum needs for food, and providing the minimum income necessary to meet their basic domestic needs, within five years of first habitation on the site.

3.18 Food and income have to be derived from the land based resources of the site. This is the basis of the need to live on site and the reason why the site should be the sole residence of occupants. This is also why the number of occupants of a site should be directly related to the ability of the site to meet their minimum food and income needs, also taking into account the number of people needed to run the site effectively.

3.19 It is implicit, therefore, that land based activities on site should generate a modest income for occupants, sufficient to meet the minimum income needs of all occupants on the site as well as their minimum food needs. These land based activities can be any form of produce grown and / or reared on the site (including the processing of such produce). Income to meet the minimum income needs of occupants specifically cannot include other income derived from the site or elsewhere unrelated to land based activities, nor can it include unearned income.

3.20 Where there is more than one household on the site, the products grown and reared on the site need to meet the minimum food and basic income needs of all the occupants of the site.

3.21 The produce grown and reared on the site (that meets the minimum food and basic income needs of the occupants) must be the result of the labours of the occupants of the site and not that of hired hands.

Permaculture Box 3

Permaculture is an approach to designing integrated agricultural, energy, waste and social systems by mimicking natural ecosystems such that diverse inter-species relationships create multiple benefits and resilient, stable and productive habitats which support human habitation.

The word 'permaculture' is a contraction of 'permanent agriculture' and has now also been offered as a contraction of 'permanent culture'. It is a central tenet of permaculture that people's needs should be met within the carrying capacity of natural systems, and that this should be achieved locally, at relatively small scales.

Permaculture starts with observing a site, and then working up designs for it which make the best use of the site's renewable resources and productivity. Wastes are minimised and resource cycles and diversity maximised. The site is ultimately seen as an integrated system rather than a series of separate activities.

In these ways permaculture is intrinsically site-based and focused on low environmental impacts, and this is why it is so often linked to Low Impact Development and One Planet Development, as it is a good way of achieving their objectives.

Components

3.22 Individual OPD management plans should describe and quantify how the minimum food and income needs will be derived from the site in ways that fit with the particular site and OPD proposals. These requirements underline the fundamental land based and subsistence ethos of One Planet Development but do not preclude inhabitants earning other income. Any unsustainable impacts of their whole lifestyle that result from having other income will be picked up through the EFA.

Subsistence – food

3.23 One of the clearest ways in which land based activity can support the residents of a site is by providing them with food. This significantly reduces their environmental impact as it means that their food does not have to be produced elsewhere, packaged and transported to them.

3.24 It is not feasible for all the food needs of occupants to be produced on site for two reasons: (a) it is difficult to produce and process all of the food types which are needed for a healthy diet from a single site in Wales, especially cereals; and (b) there will be times of the year during which food production will be too low to meet all of the needs of occupants. Realistically, an OPD site should be able to produce at **least 65% of basic food needs**.

3.25 The expectation therefore is that for One Planet Development in the open countryside either:

- 65% of all food needs of all occupants of the site are grown and/or reared on the site; or that

- A minimum of 30% of basic food needs of all occupants are grown and /or reared on the site, with the remaining 35% of food needs purchased or bartered using the income or surplus produce from other produce grown and /or reared on the site (such as timber or biomass or a surplus of particular products).

3.26 This strong emphasis on growing / rearing produce on the site underlines the essential land based and subsistence nature of the One Planet Development. Where food is purchased with income derived from on-site production, the EFA will act as a balancing influence. This is because all food purchased will contribute to the Ecological Footprint of the occupants of the site.

Enterprise – income

3.27 Even if a site is able to support the majority of the occupants' basic food needs, they will still have certain basic needs which cannot be met from the site and for which a monetary income is required to enable their purchase. These minimum needs are:

- clothes

- travel

- IT / communications

- Council Tax

- the remaining 35% of food needs (or less) that cannot be grown/reared on the site or gained through bartering (para 3.25).

3.28 OPD in the open countryside should be part of the social and economic fabric of the Welsh countryside - not overly isolated and inward-looking. Sites need to earn their occupants sufficient income to meet their minimum income needs through sales of produce from the site (which may involve processing and adding value). It may also include other income streams derived from the productive and regenerative capacity of the site, such as from training and education courses, or consultancy directly linked to land based activities on the site. **Nevertheless, these latter activities should be clearly subsidiary to the primary activity of growing and rearing produce.** This underlines that surplus produce will almost certainly need to be grown and / or reared on the site to contribute to the above expenditure and to ensure the subsidiary nature of other income streams generated on the site.

3.29 At the time of application, the management plan should provide a simple balance sheet demonstrating how sufficient income will be generated to meet the basic income needs of all occupants. This will be based on projections of the anticipated income from sales of produce from the site. Once the One Planet Development is established this should be evaluated via a simple set of accounts whereby the minimum income needs of occupants are collated and balanced with

income derived from the land use activities on site.

Processing and Adding Value **Box 4**

On-site processing might include home cooked foods, preserves, cheese making and other dairy production, meat curing, basketry and textile production as examples. On-site processing can bring significant benefits. It can build skills and provide much higher margins on sales. When sold to the local community it can help reduce their ecological footprint by reducing food miles and by utilising low carbon methods of production with hand labour (artisan production) replacing automated production methods, thereby raising the overall environmental performance of the development.
.
All such enterprises can foster cross benefits and symbiosis enabled by the small-scale nature of the enterprises. On-site processing can significantly increase the possible range of revenue streams within a small-scale mixed-use land holding. Many ancillary, or waste products, can be used as the raw materials of other enterprises on-site. Examples include produce for preserve making or alcoholic beverage making, ingredients for soap production, or small scale commercial coppice or firewood production.

Five-Penny Farm provides a centre where growers can process their produce and have it taken to market

Occupants

3.30 That One Planet Developments in the open countryside can support the minimum food and income needs of their occupants is the main reason that justifies, in planning terms, such developments. It is also the primary contributor to the high sustainability of these developments – in locations where it would otherwise not be highly sustainable to live. It is therefore of critical importance that the number of occupants is directly related to the ability of the site to support them and the number of people needed to run the site effectively. If there is a mismatch between these two numbers, with the number of people needed to work the land and run the site effectively being greater than the site can support, then the proposals cannot meet the requirements of One Planet Development.

Essential criteria

3.31 The essential criteria are that:

- The minimum food needs of all households are met from produce grown and / or reared on the site or purchased using income derived from other products grown and reared on the site.

- The basic domestic needs of all households are met from income derived from produce grown and reared on the site, including processing and adding value,

and other income streams derived from the productive and regenerative capacity of the site, such as from training and education courses, or consultancy directly linked to land based activities on the site. These latter activities should be clearly subsidiary to the primary activity of growing and rearing produce.

- The number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.

Contributory criteria

3.32 The contributory criteria are that:

- The land based enterprise provides food and other products to local markets, reducing local footprints.
- Facilities for processing produce are made available to other local producers.
- Training / courses / consultancy are offered as components of the land based enterprise to share best practice of One Planet Development.

Monitoring: Essential criteria

3.33 The targets and indicators for monitoring the essential criteria are:

- Target: That the minimum food needs (at least 65%) of all occupants are met from produce grown and reared on the site or purchased using income derived from other products grown and reared on the site.

  Indicators: Annual reporting of food production consumed by household.
  Annual reporting of spend on other food.

- Target: That the minimum income needs of all occupants are met from income derived from land use activities on the site.

  Indicator: Annual household income and costs reporting.

- Target: That income derived from other land based enterprises such as training and education courses, or consultancy remain subsidiary to the primary activity of growing and rearing produce.

  Indicator: Annual reporting on the total value of produce grown and reared on the site compared with income derived from other land based enterprises.

- Target: That the number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.

  Indicator: Annual reporting on number of occupants by household and their roles on site.

Monitoring: Contributory criteria

3.34 The targets and indicators for monitoring the contributory criteria are:

- Target: That the land based enterprise provides food and other products to local markets, reducing other local footprints.

  Indicator: Annual reporting of sale volumes and market areas by each on-site enterprise.

- Target: That facilities for processing produce are made available to other local producers

  Indicator: Annual reporting on use of processing facilities by others.

- Target: That training / courses / consultancy, as components of the land based enterprise, share best practice in sustainable land based activities with the wider community.

  Indicator: Annual reporting on training and consultancy activities.

Ecological Footprint Analysis: Data needs

3.35 Data that need to be collected to inform the Ecological Footprint Analysis (EFA) are:

- Consumption of food:
  - From site (demonstrated by reduction in purchases and records of harvest);
  - purchased.

Other Footprints: Data needs

3.36 Data that need to be collected to inform the identification of Other Footprints include:

- Deliveries – number and length of trips (mpg).
- Energy used in processing.

Ourganics (Pat Bowcock), Dorset.: A former pony paddock is now the source of food which feeds Pat and also local people through sales.

Ourganics, Dorset: Food production

Land Management

What TAN 6 requires

- Preparation of a baseline assessment of biodiversity and landscape character with clear management proposals to enhance features of importance [4.20.1]

Objectives

3.37 One Planet Developments in the open countryside should have the objective of conserving, managing and, wherever possible, enhancing environmental quality. The starting point will be what is already present on the site (paras 3.3 – 3.8). One Planet Developments should conserve and enhance the site's biodiversity, cultural heritage and landscape, also potentially bringing benefits to the wider landscape. It will be particularly important to conserve designated sites and features and, in the case of biodiversity, habitats and features identified in the Local Biodiversity Action Plan (ask the local Wildlife Trust).

3.38 Objectives for biodiversity, cultural heritage and landscape should be integral to the management of the whole site forming part of a sustainable land management system that provides food and other products while also benefitting other aspects of the environment. This will include improving soil organic matter and increasing populations of pollinating insects and natural predators to pests and diseases. By so doing it should also increase adaptation of the natural environment to climate change.

Components

3.39 Management plans for One Planet Development in the open countryside should describe how the above objectives will be achieved through the management of the land, demonstrating how this will be integrated into the overall production systems on the site.

Management

3.40 The first step will be to conserve all existing features of biodiversity, cultural and landscape importance on the site such as hedgerows, woodland, features of cultural heritage importance and semi-natural habitats. These should have been recorded as part of the baseline (para 3.3 – 3.8). Conservation of these features should include continuing or reintroducing appropriate traditional management to ensure that these features are retained in good condition (increasing their resilience to change). Opportunities should also be taken to extend their area

where this fits into the overall site plan. This should include forming links (wildlife corridors) with valued features that lie beyond the site boundary and, for example, extending areas of permanent grassland over known areas of important buried archaeology.

3.41 Where the site has especially diverse habitats and species identified in the Local BiodiversityAction Plan, the development and management of the site should focus on the conservation and enhancement of the existing flora and fauna. In areas of poor existing habitat, creating new habitat will be a more useful focus. This may be traditional habitats and features that have been lost through the intensification of agriculture in the wider area, such as the reintroduction of traditional orchards, or the reinstatement of lost woodland, hedgerows, stone walls and wetlands. Equally it may include other habitats and features that can perform other important functions on the site, such as the creation of ponds to store grey water; growth of coppice to provide fire wood; or the use of traditional woodland and shelterbelts to help protect horticultural areas and enhance carbon storage.

3.42 In considering the addition of new features it will be important to take account of views to and from the site, helping blend the site into its surroundings and using a natural vernacular characteristic of its surroundings. This will help strengthen local landscape character rather than take away from it.

3.43 Choosing the right site for buildings (including polytunnels) and tracks and other access arrangements) will be an important aspect in assisting landscape 'fit'. Locations for buildings and access should be chosen where they will not be obtrusive in views from outside the site. Suitable locations will be those that are part screened by the lie of the land and /or existing tree and hedgerow cover or new planting. There will also be benefit in providing additional tree and hedgerow planting that further help filter views into the site, especially of built structures and areas of horticulture. These can often combine with shelter belts that can improve the micro-climate around dwellings and offer shelter to cropped areas.

3.44 In summary:

3.45 **Biodiversity:** For biodiversity the key considerations will be to: (a) conserve all existing semi-natural habitats (such as wetlands, ancient woodlands and semi-natural grassland and heath) and other habitats present that are noted in the Local Biodiversity Action Plan or which support species noted in the Local Biodiversity Action Plan; (b) extend the area of these habitats if present where possible or consider reintroducing them if once present but now lost; (c) maximise the biodiversity benefits that can be gained from the wildlife-friendly design of other functional needs on the site, such as ponds for the storage of grey water and the planting of coppice for firewood; (d) where possible, plan all these habitats (a, b and c) as an interlinked network across the site potentially linking to habitats beyond the site boundary; and (e) bring all these habitats under appropriate traditional management, which should maximise their species diversity and increase their resilience to change.

3.46 **Cultural heritage:** For cultural heritage the key considerations will be to protect and maintain important historic features on the site including known below

ground archaeology and earthworks (such as strip lynchets, earth bank fortifications and ridge and furrow) and above ground built monuments and features including traditional buildings. Below ground archaeology and historic earthworks are best conserved under permanent grassland with extensive grazing. Soil erosion and poaching by animals should be avoided as should scrub and tree growth, as roots can damage the underlying archaeology. Built features of historic importance should be stabilised to prevent further damage and ideally extensive vegetation growth removed.

3.47 **Landscape:** One Planet Development in the open countryside should have a positive impact on the surrounding landscape. This, to a significant extent, should be 'built into' One Planet Development, as traditional land use activities and habitat management were what created historic landscapes in the first place. Thus OPD can either reinforce or recreate valued traditional landscape features such as hedges, orchards, woodlands, copses and meadows. One Planet Development is generally small scale, and so should not have a major landscape impact. Nevertheless it is important to ensure that: (a) features created (such as hedgerows, hedgebanks and walls) reflect the traditional characteristics of the local landscape; (b) dwellings and other structures including access tracks are located where they can be recessed into the landscape as part of the wider design for the site, such that they do not stand out in views from public vantage points; and (c) new features created under (a) above, provide additional screening (using native species) where this will help the overall development blend into the wider landscape.

Production

3.48 Production is intrinsic to One Planet Development in the open countryside (para 3.16). It is the productivity of the land based activities that principally allows occupants to reduce their environmental impact by meeting their needs from the site rather than elsewhere. However, environmentally sensitive forms of production also have direct land management and environmental benefits.

3.49 Positive synergies between production and land management should be strongly embedded in One Planet Development in the open countryside, and are at the heart of well-established approaches to ecologically-based land management such as permaculture (see **Boxes 3 & 6**).

3.50 Rather than there being a tension between production and positive land management, OPD production systems should be fully integrated into management approaches which support and enhance environmental quality.

Essential criteria

3.51 The essential criteria are that:

- All existing semi-natural and other important habitats on the site are conserved and enhanced through appropriate traditional management
- All cultural heritage features (e.g archaeology) on the site are conserved and enhanced through appropriate management.

- The landscape of the site is enhanced by the addition and traditional management of characteristic or once characteristic local landscape features that, amongst other things, may be used to screen and filter views to built elements of the proposals and to provide shelter and screening to horticultural areas.

- Buildings and other structures and access tracks are located where they can be recessed into the landscape and do not stand out in views from public vantage points.

Contributory criteria

3.52 The contributory criteria are that:

- Existing semi-natural habitats are extended or once characteristic habitats are recreated, ideally creating wildlife corridors across the site, linking to other habitats beyond the site.

- Populations of once characteristic farmland birds of the local area are increased through appropriate habitat creation.

- Soil organic matter is increased.

- Populations of pollinating insects are increased.

Monitoring: Essential criteria

3.53 The targets and indicators for monitoring the essential criteria are:

- Target: That all existing semi-natural habitats are in favourable condition.

  Indicators: *Spread of characteristic species of that habitat against an established baseline.*

  Decline in non-characteristic / commercial agricultural species within each habitat (seek advice of Wildlife Trust).

- Target: That all identified cultural heritage features are maintained in good condition.

  Indicators: *No cultivation or soil erosion over buried archaeological sites and historic earthworks.*

  Scrub and trees removed over buried archaeological sites and historic earthworks.

  Above ground historic/ cultural features stabilised and scrub / trees removed.

- Target: That there is an increase in the number and /or area or length of traditional characteristic landscape features and all are under appropriate traditional management.

  Indicators: *Increase in the number / area / length of x landscape feature.*

  Increase in the number / area / length of y landscape feature.

Enhancing species diversity and abundance **Box 5**

Overall, the management plan should strive to enhance species diversity and abundance across the site. For example:

- management of hedgerows should be timed to allow plants to fruit
- areas of low-fertility / high diversity grassland should not be destroyed
- fish should not dominate a body of water to the exclusion of other wildlife.

Hedgerow at Holsworthy Organics, Devon is managed on a 7 year cycle to allow production of nuts and berries for wildlife

Highly intensive areas of horticulture at Primrose Farm, Hay-on-Wye, allow areas to be left for wild flowers, nuts and berries which create food for birds and insects

Biocapacity **Box 6**

Biocapacity is the ability of a natural system to produce useful renewable resources and assimilate wastes. A One Planet Development must, therefore, have sufficient biocapacity to support its occupants and other activities on site. In addition, it is intrinsic within One Planet Development to strive to increase the biocapacity of the site. It may be, therefore, that a site's biocapacity will exceed the needs of its occupants and other activities on site and so will be of wider benefit.

Improvements in the diversity and yields of food, fodder, energy and natural materials increase biocapacity. These are supported by the creation of micro-climates and niche habitats to increase species diversity and abundance. Similarly the ability to assimilate wastes is embedded in supporting natural cycling of materials and the diversity and robustness of habitats.

Monitoring: Contributory criteria

3.52 The targets and indicators for monitoring the contributory criteria are:

- Target**:** That (named) semi-natural habitat(s) are extended / created.

  Indicators: Area of new habitat.
  Spread of characteristic species of that habitat.

- Target: That there is an increase in the population of farmland birds on the site.

  Indicator: Number of breeding farmland birds on the site against an established baseline.

- Target: That there is an increase in the population of honey bees.

  Indicator: Number of active bee hives on site.

Ecological Footprint Analysis: Data needs

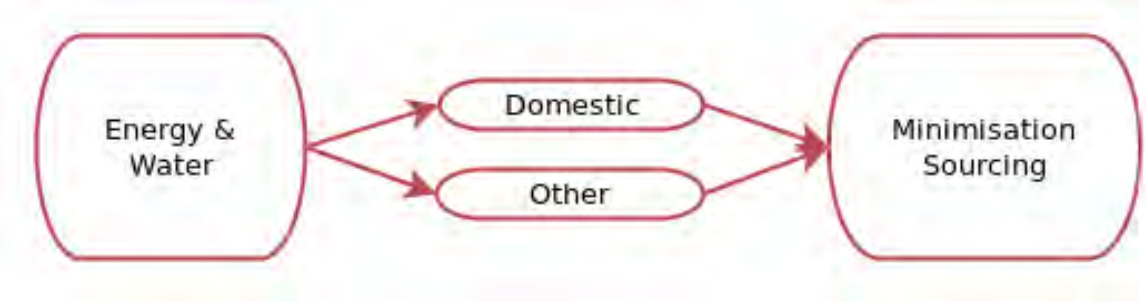
No data needed

Pentiddy Woods, Cornwall: Acres of new chestnut and hazel coppice have been planted. The new house at Pentiddy is well screened by the existing and new hedges and woodland, and is constructed of locally sourced timber, milled on site, Delabole slate and Bodmin granite.

Fivepenny Farm, Dorset: Planting of new orchards, restoring the traditional Dorset landscape

Ourganics, Dorset: From a pony paddock to a biodiverse mini landscape

Energy and Water



What TAN 6 requires

- Quantification of how the inhabitants' requirements for energy can be obtained directly from the site [4.17.1]
- There is the potential to have wider community carbon reduction benefits through the export of any surplus electricity to the grid [4.19.1]

Objectives

3.53 Although TAN 6 only considers energy, water is a natural resource that also requires careful management. Energy and water are both resources which development consumes, and so create environmental impact. It is an essential characteristic of One planet Development that the use of these resources is **minimised** and **re-used** wherever possible and that the energy needs of inhabitants come from the site. This should also be the case for water, unless it can be demonstrated that there is a more environmentally sustainable alternative.

Components

3.54 Energy and water are consumed by both **domestic** and **other activities** on the site. These will often overlap, such as the growing of produce, but where sites have non-domestic activities, such as commercial agriculture / horticulture, produce processing, or education and training facilities, these need to be accounted for separately, as they may greatly change the use of energy and water on the site as a whole.

Minimisation of consumption and re-use

3.55 As for all development the first priority is **minimisation** of energy and water needs by reducing demand. This will make it easier to meet all energy and water needs from the site.

3.56 In addition to minimising energy and water use for individual activities both can be **re-used** on a site as flows, such as using excess heat from dwellings to also heat greenhouses or growing beds.

Minimisation of Energy **Box 7**

Minimisation of the use of resources and waste is a key feature of OPD. Energy and water are the most obvious targets.

The key to energy efficiency is to minimise demands on the system. Highly insulated buildings, LED lighting, as well as energy contributions such as solar gain, heat reclaim or combined heat & power can provide means of delivering these savings at the design stage. The inclusion of such features within a scheme can significantly reduce the energy needed to run a building and so can reduce the generation capacity that is required, thus promoting substantial cost savings for these expensive elements.

Hockerton Housing Earth-sheltered terrace

Sourcing

3.57 There are two basic types of resource – renewable and non-renewable. OPD sites should provide for the needs of their inhabitants through the use of **renewable resources**.

3.58 **Energy:** Solar, wind, water and biomass are the main sources of renewable energy suitable for One Planet Developments. Their availability will vary from site to site and through the seasons. The lowest impact and most cost effective way to meet the energy needs of the site will often be through a combination of different technologies.

3.59 Although sites should be broadly energy self-sufficient, if a grid connection is available this allows surplus energy to be exported to the grid, and conversely for backup energy to be drawn from the grid in an emergency, although energy should not routinely be drawn from the grid and will be add to the Ecological Footprint of the development.

3.60 It can be that for specific purposes the use of small amounts of non-renewable fuels is acceptable where it is justified by need and suitability. This use will again be picked up through the Ecological Footprint Analysis. Examples might be use of bottled gas for cooking in the warmer months when wood stoves are not lit, or use of machinery for specific agricultural, horticultural, woodland management and processing tasks. The generation of electricity from non-renewable fuels is not acceptable.

On-site energy resources **Box 8**

One Planet Development should look to maximise the use of on-site energy resources including through 'micro-generation'.

The most abundant on-site energy source will be **biomass** – usually wood. Most OPD wood heating systems will be based on a log burning stove that can be used to heat living spaces as well as, in some cases, food and water. Super-efficient 'mass' stoves and rocket stoves lower the volume and quality of timber required. There are electronically controlled wood burning systems that are self-feeding and these are generally more suited to communal and shared living spaces where the cost of installation can be spread.

Well-designed buildings can greatly reduce the need for powered heating and ventilation through use of **passive solar** design. The use of glass on the southern aspect, either windows, conservatories or a trombe wall system traps warm air inside. Large areas of thermal mass as floors or walls can also absorb heat and radiate it back out at cooler times of day or night. Ventilation can be passive, manually controlled or low-energy powered. Thermal hot water solar panels are effective in heating water for washing and to a lesser extent for space heating.

Wind, sun and water can all be used for the **micro-generation** of electricity. A site's available resources will vary and so influence what mix of wind turbines, photovoltaics (sun) and hydro- electric turbines would be best utilised. Wind turbines can also be intrusive in certain situations and may be resisted by the local planning authority if they are of a size to contravene their local planning policies. Micro-scale combinations of more than one system may well be best for single houses, but sites may also offer larger-scale resources such as the larger hydro- electric turbine and leat being reinstated at Lammas.

House at Lammas entirely powered by renewable energy. Photovoltaics power lights and computers and timber from the site is harvested, stored and used for cooking and to heat living space and water.

3.61 **Water:** Water is available from a variety of on-site sources. The primary source should be rainwater harvested and stored on-site from buildings, structures and other hard surfaces. The limit to its use will be set by what is collected. The balance will be drawn from water bodies – ponds / lakes including those created as part of the development on-site, watercourses (rivers / streams), and wells / boreholes (groundwater). The levels of abstraction from these will define whether they are being used sustainably or not. Over-abstraction can cause environmental harm, with water bodies and water courses drying up and groundwater abstraction potentially leading to falling water tables that may lead to the drying out of important water-dependent habitats.

Water harvesting and use **Box 9**

For land based activities water is a vital resource. Effective harvesting through rain water capture and / or the use of ponds, swales and pools can allow for large volume water storage and overcome many of the otherwise costly forms of providing the water needed. Rainwater harvesting systems - guttering and tanks – can yield valuable water supplies. It is important that these issues are addressed at the design stage of any scheme, as adequate forward planning will make all these works simpler and cheaper to implement

Water at Holsworthy Organics, Devon is collected from roofs and stored in containers above and below ground.

Essential criteria

3.62 The essential criteria are that:

Energy

- The energy needs of the site will be **minimised** through suitable design and use of technology, including that which enables re-use.
- All of the energy needs of all activities shall be met from sources of **renewable energy** on site, with the exception of small amounts of non-renewable fuel for particular uses for which they are best suited and justifiable (para 3.60).

Water

- The water needs of the site will be **minimised** through suitable design and use of technology, including that which enables re-use.
- Rainwater **harvesting** from buildings and structures must be maximised.
- All of the water needs of all activities should be met from water available on site, unless there is a more environmentally sustainable alternative. Abstraction from water bodies (including groundwater sources) must be at levels that do not cause environmental harm. Harm would result from the lowering of surface and ground water levels.

Contributory criteria

3.63 The contributory criteria are that:

Energy

- The embodied energy of renewable energy equipment should not outweigh its benefits from energy generation.
- Human and animal labour should replace the use of non-renewable energy whenever possible and practical.

Water

- Any water pumping should be renewably powered.
- Any ponds / lakes created should maximise habitat creation and should not destroy important existing habitats.

Monitoring: Essential criteria

3.64 The targets and indicators for monitoring the essential criteria are:

- Target: That all of the **energy needs** shall be met from sources of renewable energy on site.

  Indicators: *Annual reporting on use of renewable energys generated on site (as percentage of energy needs).*

  Annual reporting on use of all non-renewable fuels, recorded in terms of use (what for) and amount (quantity)

  Annual reporting on quantity of electricity exported to the grid and imported from the grid.

  (Note: all purchased energy will form part of the EFA making it necessary for energy use to be minimised)

- Target: That all **water needs** are met from water available on site (unless there is a more sustainable alternative).

  Indicators: *Annual reporting on use of water sources (amount used from each source), including that harvested from site and that abstracted from water bodies (surface and ground water).*

  Annual reporting on ground and surface water levels (reported on monthly basis).

Monitoring: Contributory criteria

3.65 There are no targets or indicators for monitoring the contributory criteria. The input of human and animal labour will be measured indirectly through the monitoring of energy purchased – the more that energy is purchased the less effort is being made to replace it with human and animal labour.

Ecological Footprint Analysis: Data needs

3.66 Data that need to be collected to inform the Ecological Footprint Analysis (EFA) are:

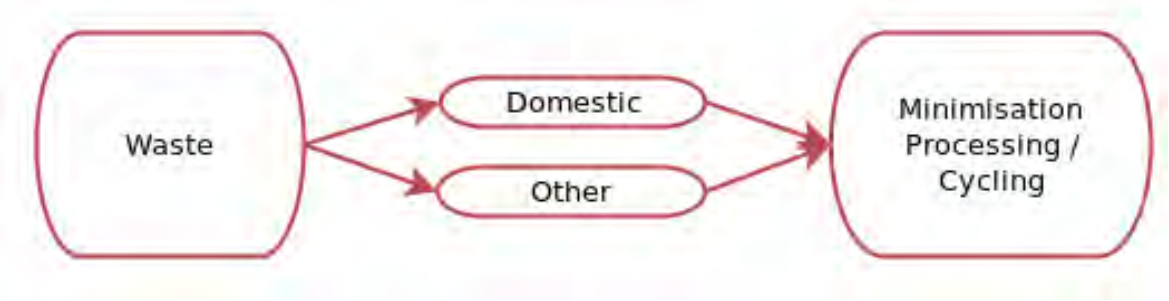
- The type and amount of purchased energy utilised (kWh) for domestic use, with details of the source.
- The amount of capital invested in renewable generation technologies to supply domestic needs.

Other Footprints: Data needs

3.67 Data that need to be collected to inform the identification of Other Footprints include:

- Annual reporting of energy purchased for non-domestic purposes on site (this will be the total amount of energy purchased minus that allocated to domestic use above).
- The amount of capital invested in renewable generation technologies to supply non-domestic needs (again this will be the total capital investment in renewable generation technologies minus that allocated to domestic uses above.
- Annual reporting on quantity of electricity exported to the grid.

Waste



What TAN 6 requires

- Quantification of how the inhabitants' requirements for waste assimilation can be obtained directly from the site [4.17.1]

Objectives

3.68 Development will produce waste, which will have an environmental impact. It is an essential characteristic of One Planet Development that all waste produced (other than very small amounts of unavoidable non-biodegradable or hazardous wastes) should be assimilated on site, in environmentally sustainable ways.

Components

3.69 Waste is produced by both domestic and other activities on site. Likely types of waste include:

- domestic food waste
- grey water
- human faeces and urine
- packaging and paper
- green waste from growing food and timber
- livestock manures.

3.70 Specific activities such as food processing may produce increased volumes of particular wastes that need to be assimilated. The wastes produced by other activities need to be accounted for separately from domestic wastes as they may significantly change the nature of waste produced by the site as a whole.

3.71 Certain types of waste will be very difficult or impossible to assimilate on site due to their non-biodegradable, toxic or hazardous nature. One Planet Developments should only occasionally generate small amounts of these wastes. Examples of his include worn out clothing or footwear, broken hardware and spent rechargeable batteries. These items should be disposed of by sustainable means off-site and recycled wherever possible.

3.72 The ease with which waste can be assimilated on site is strongly

determined by the extent to which waste can be minimised, the types of waste produced, and the degree to which waste can be re-used and recycled within the site.

Waste minimisation

3.73 As for all development the first priority must be waste minimisation (especially of non-biodegradable and hazardous wastes). This will be greatly assisted if the majority of food needs are obtained direct from the site.

Waste re-cycling and re-use

3.74 Organic wastes (which are likely to make up the majority of waste on a One Planet Development) can bring significant benefits through re-use. Waste can be recycled, most obviously as organic material for fuel or plant growth (recycling of organic wastes on-site can increase the overall fertility and productivity of the site). Other wastes may be re-used off site as part of public recycling initiatives. Grey water can be used for secondary domestic use, such as toilet flushing, or for irrigation, *although the use of grey water on edible crops is not recommended on health grounds (potential presence of pathogens)*. Waste recycling and re-use avoids costly, expensive to maintain and potentially vulnerable waste treatment approaches

Composting / cycling of wastes **Box 10**

A wide range of organic wastes can be assimilated on site through composting and re-cycling, often in combination. **Human faeces** must be managed with care on health and safety grounds. Dry toilets reduce water consumption and the cost of installing treatment plants. Correct composting can break down solids suitable for safe return to the soil around non-food crops. Septic tanks with leachfields offer one of the most effective means of treating sewage and plants such as comfrey can be planted along them and then used as green-manure or composts. The build-up of sludge in septic-tanks means that they need emptying periodically and subsequent application to soil on site will have to follow Environment Agency guidelines. **Human urine** is an efficient catalyst in the composting process, it is also very high in nutrients and needs to be diluted 1 part to 12 parts water when applied direct to soil.

Domestic food waste – can be composted and returned to the soil for food and other crops. It can also be fed to animals such as pigs and chickens. **Green waste from growing food and timber** can be composted to fertilise other crops and also fed to livestock. **Livestock manures** are a valuable source of nutrients that can go back into the soil to provide nutrients for all crops, after effective composting with the addition of carbon-rich materials such as green waste from plants and trees.

Essential criteria

3.75 The essential criteria are that:

- All biodegradable waste produced on site is assimilated on site in environmentally sustainable ways.
- The only exception to this is occasional off-site disposal of small non-biodegradable amounts of waste which cannot be assimilated on site which arise from things used on site wearing out or breaking irreparably.
- All waste handling and assimilation on site must comply with Environment

Agency guidelines.

Contributory criteria

3.76 The contributory criteria are that:

- The re-use of organic waste on site should increase overall site fertility and productivity so long as this is not at the expense of important semi-natural habitats dependent on low soil fertility.

Monitoring: Essential criteria

3.77 The targets and indicators for monitoring the essential criteria are:

- Target: That all biodegradable waste produced on site will be assimilated on site in environmentally sustainable ways.
- Target: The only exception to this is occasional off-site disposal of small amounts of non-biodegradable waste items which cannot be assimilated on site that arise from things used on site wearing out or breaking irreparably.

  Indicators: *Annual reporting on quantity of all waste production by types of waste and sources - domestic and other (specified).*

  Annual reporting on quantity of on site waste assimilation and off-site waste disposal.

- Target: That all waste handling and assimilation on site must comply with Environment Agency guidelines.

  Indicator: *Annual statement of compliance with Environment Agency guidelines.*

Monitoring: Contributory criteria

3.78 The targets and indicators for monitoring the contributory criteria are:

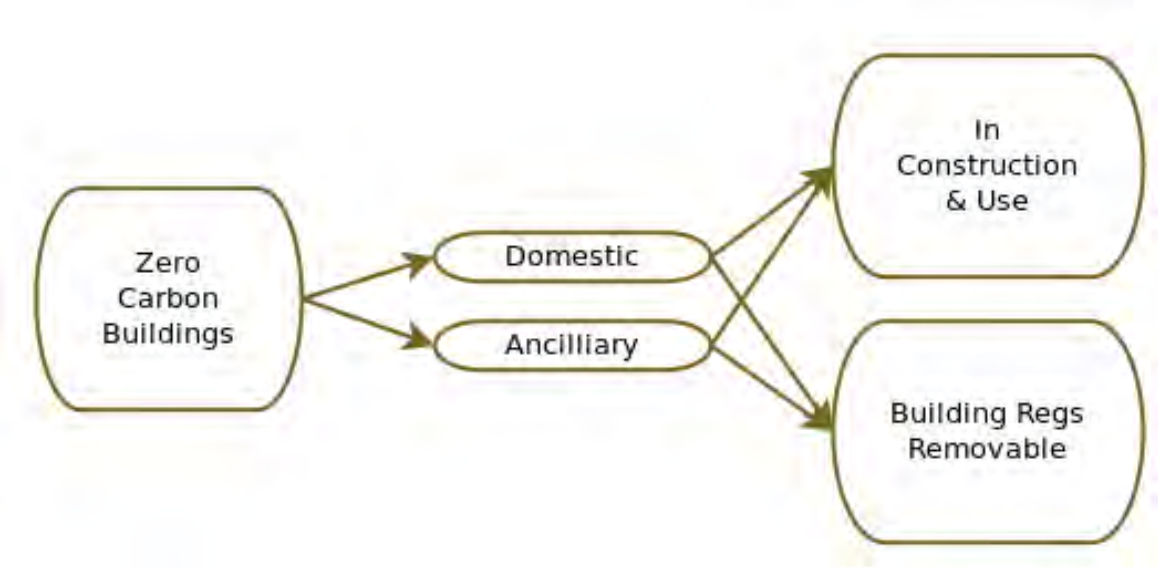
- Target: That the re-use of organic waste on site should increase overall site fertility and productivity, so long as this is not at the expense of important semi-natural habitats dependent on low soil fertility.

  Indicator: *Addressed in annual reporting of on-site waste assimilation (see above).*

Ecological Footprint Analysis: Data needs

None

Zero carbon buildings



What TAN 6 requires

- OPDs should be exemplars of Welsh Government's zero carbon aspiration and achieve zero carbon status in terms of construction and use of the development [4.19.1].
- Planning applications should be accompanied by supporting information confirming that the development will be zero carbon in construction and use [4.19.2].
- Plans should be monitored as part of the annual monitoring report [4.19.2].

Objectives

3.79 This section is principally concerned with the proposals for buildings, their assessment, and then ensuring that they are built as specified. The main aspects of their use are covered by the energy and water and waste elements of the management plan described above.

Zero carbon

3.80 All One Planet Developments should share the aspirations set out by the Welsh Government to achieve development that is of 'zero carbon' status in terms of construction and use. This does not mean that the development should literally have no net carbon impacts in construction and use, as this is very hard, if not impossible. Instead, 'zero carbon' is a term for a specified carbon reduction used to define the standard for 'zero carbon' buildings.

3.81 The carbon impacts of buildings fall into two basic areas:

- **in construction** – the embodied energy in construction materials and the energy used in construction
- **in use** - 'regulated emissions' such as heating, lighting and cooking, and 'unregulated emissions' covering all other energy use such as appliances.

3.82 In practice the requirements for the zero carbon standard for construction are found mainly in the Code for Sustainable Homes (CSH) and for use in a revised Part L of the Building Regulations produced by Welsh Government. One Planet Development is required to meet these standards, but it is recognised that the ways in which it achieves them may vary from those for more 'conventional' development. What is important is that a similar overall 'zero carbon' performance is achieved in construction and use, not how it is achieved. For One Planet Development the zero carbon requirements relate to both domestic and ancillary buildings subject to Building Regulations control.

3.83 In addition to being 'zero carbon' in construction it is also important that One Planet Development has a low overall environmental impact in construction. The zero carbon assessment of construction materials will, by its nature, also cover other environmental impacts. OPD proposals should, in addition, include a brief explanation of construction approaches and how they reduce environmental impacts. This could form part of the Design / Strategy (paras 3.9 – 3.13).

Zero Carbon in Construction – Code for Sustainable Homes

3.84 One Planet Development must share the aspirations of the CSH for new homes to be as sustainable as possible in construction. However, many aspects of the CSH are not well suited to assessing the overall sustainability of OPD homes as these often take 'low tech' approaches to construction and draw parts of their overall sustainability from their open countryside location, both of which the CSH does not anticipate.

3.85 This guidance as a whole assesses the sustainability of One Planet Developments in the round, and therefore the construction of One Planet Development buildings in the open countryside is only required to meet the standards of CSH in respect of Category 3 – Materials. The five elements of the building covered by Category 3 are:

- roofs (in OPD these often take 'low tech' approaches to construction)
- external walls
- internal walls
- floors
- windows

3.86 For an OPD home at least four of these elements should achieve a rating of A+ or A6, using either recognised published ratings[7] or clearly demonstrating similar attributes for materials without a recognised published rating. The use of renewable natural materials for the main elements of One Planet Development, including insulation, should be prioritised.

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[6] 'this is the equivalent of CSH Code 5/6 for the materials used in construction'

7 Such as the CSH Technical Guide or BRE Green Guide to Specification

3.87 In addition, the CSH requirement for 80% of the assessed materials in these building elements and for finishing elements to be responsibly sourced must be met, and 100% of any timber must be legally sourced. Again, where any of the materials used for One Planet Development do not have published assessments it must be demonstrated that they have similar attributes.

3.88 It may be that the materials used by One Planet Developments, and the ways in which they are used, are relatively unusual. In these cases the onus is with One Planet developers to demonstrate that these materials have similar (or better) attributes to those covered by Category 3. Materials such as timber and minerals sourced and processed on site, and re-used materials are examples of such less commonly used low impact materials. Where the use of materials is particularly novel or unusual it will also be necessary to demonstrate that their proposed use is practical and achievable.

Zero Carbon in Use

3.89 A definition of zero carbon in use for buildings in Wales will be published by the Welsh Government.

3.90 All One Planet Development buildings subject to building regulations must achieve this standard, though the way in which they do this may not be the same as that followed in more conventional buildings. One important example of this is that in One Planet Development buildings, due to their small or simple nature and limited facilities, it may not be possible to consume large amounts of energy. The onus is with One Planet developers to demonstrate that their buildings meet or exceed the current zero carbon standard, by whatever means. TAN22 – Planning for Sustainable Buildings provides an energy hierarchy approach to minimising carbon emissions arising from new development in Wales, which may be a useful reference for One Planet buildings to follow.

Building Regulations

3.91 Building Regulations are a separate area of control from planning. Whether buildings require Building Regulations approval is defined in the Regulations themselves and is a technical / legal matter essentially concerning the nature and categorisation of structures, including dwellings. There are a limited range of building types that are not subject to Building Regulations, including most buildings associated with agricultural and horticultural production.

3.92 One Planet developers must clearly establish which structures, contained within their proposals, are subject to Building Regulations. The local planning authority can assist with this. The aim should be to do this before or as part of pre-application discussions (para 1.14).

3.93 It is possible for One Planet applicants to propose dwellings and other structures in forms that do not require Building Regulations approval, such as those complying with the definition of a caravan or other temporary structure. The types of structure should be justified in terms of their fitness for purpose and minimisation of environmental impacts. Some will require Buildings Regulations

approval, others will not.

3.94 One Planet buildings subject to Building Regulations have to address the requirements of the Regulations. As for all buildings subject to Building Regulations there are different ways in which the requirements can be addressed. The Approved Documents provide great depth of advice on how this might be achieved, but some of this advice may not be well suited to One Planet Development which often takes 'low tech' approaches to construction and may use novel or unusual materials in innovative ways. In such cases the central concern is whether the requirements of the Regulations are nonetheless addressed.

Capable of removal with low environmental impacts

3.95 One Planet Developments in the open countryside must include an Exit Strategy (para 5.11 – 5.16). Inherent in this is an understanding that most or all buildings will be removed from site should the development fail or otherwise cease. Nearly all buildings (even those of standard design) are technically removable, but what is important for One Planet Developments is that they are capable of removal with low / minimal environmental impacts.

3.96 This can be achieved through the use of:

- demountable or transportable buildings
- buildings which can be easily dismantled and thus removed from site
- degradable natural construction materials that may be locally or site-sourced, such as rammed earth or cord wood, which can be returned to the site as part of the removal of the building.

3.97 How each structure identified for removal in the Exit Strategy, is capable of removal with low environmental impacts, should be specified.

3.98 Overall, for One Planet Development the approach to buildings should be for applicants to design them to best address their proposals, minimising carbon and environmental impacts in construction and use, and so achieve greatest sustainability. How to do this will vary from site to site and according to the nature of building(s) proposed.

3.99 What matters are that:

- the buildings achieve high environmental performance
- Building Regulations are satisfied where they apply
- as part of the Exit Strategy, all buildings are capable of removal with low environmental impact.

Existing buildings

3.100 In addition, the re-use of existing buildings on site can significantly reduce the environmental impact of development, by avoiding the need for new buildings. However, it may also be the case that the works necessary to re-use buildings may have greater environmental impacts in construction / conversion than building new ones, or that such buildings are incapable of achieving low environmental

impacts in use, or at least not without disproportionate expenditure.

3.101 Where existing buildings are of particular value in landscape or heritage terms, their re-use as part of One Planet Development in the open countryside can be acceptable even if in re-use they cannot achieve the same environmental performance in construction and use as new buildings. In other cases where there is an option to re-use buildings, the buildings chosen should be those with the lowest environmental impacts in conversion and use, taking into account the environmental 'savings' of re-use and the overall needs of the development. Where existing buildings are unsightly or have a negative impact on the local landscape because of their siting, the benefits of their removal may outweigh any in re-using them.

Components

Domestic

3.102 This includes all dwellings and other residential accommodation associated with One Planet Development proposals. These should be zero carbon in construction and use.

3.103 Note that the environmental impact of the use of domestic buildings will be assessed as part of the EFA (Chapter 4) and also under the energy and water and waste elements of the management plan.

Ancillary

3.104 This includes all buildings not in residential use but subject to Building Regulations. These should be zero carbon in construction and use, though how to achieve this will vary with the use of the building. Again, the environmental impact of the use of ancillary buildings will be assessed under the energy and water and waste elements of the management plan, but not as part of the EFA (which relates to dwellings). The use of these ancillary buildings though, may need to be considered under the 'Other' Footprints (4.24 – 4.25).

Essential criteria

3.105 The essential criteria are that:

- Domestic and ancillary buildings will be 'zero carbon' in construction and use as explained in this guidance and using the up to date Welsh definition of zero carbon.
- Proposals will identify which structures require Building Regulations approval and that this approval is obtained either before or during construction.
- All structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.

Contributory criteria

3.106 The contributory criteria are that:

- The construction of buildings should make as much use of recycled materials

as possible so long as this does not affect their ability to satisfy the essential criteria.

- Existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact on the surrounding landscape.

Buildings **Box 11**

Natural degradable materials

The use of natural degradable materials for the main elements of One Planet Development buildings can allow removal of development to be achieved through simple demolition and assimilation of these materials back to the site. Examples of this could be the use of straw bale or rammed earth walls along with small section round timbers and sheep's wool or wood fibre insulation.

Structures not requiring Building Regulations approval

Certain structures, such as those compliant with definitions for caravans in the relevant legislation, tented or other canvas structures, or mobile facilities, may not require Building Regulations approval. They may allow the proposal to have a significantly lighter impact on its site, be more economical to install or more flexible for future further development. Such structures should fit within the overall ethos of One Planet Development and not be used simply as a device to circumvent the need for Building Regulations approval.

Code for Sustainable Homes – poor fits with One Planet Development in the open countryside

The main reasons why One Planet Developments should not be subject to assessment under the Code for Sustainable Homes is that some elements of the Code are incompatible with important aspects of One Planet Development both because of technical issues and because One Planet dwellings do not stand alone but are integrated into their site. These differences include:

- aspects of off grid energy systems
- lack of ICT connections
- lack of certification of construction materials that are sourced from site or recycled
- emissions from use of wood from site as a principal fuel
- use of external toilets
- lack of Considerate Constructor status
- lack of Secure By Design status
- distance from local services and transport systems due to open countryside location.

The basic point here is that One Planet Development policy encourages sustainable solutions for rural development which the Code simply has not envisaged as its target is 'conventional' housing, not OPD.

Visual impact

Overall, One Planet Development in the open countryside should enhance the landscape in which it sits. For buildings this can sit comfortably with the need to make good use of renewable natural materials with a low embodied energy content, as green roofs, earthen walls, unprocessed timber and earth sheltering can all contribute in reducing the visual impact of built development, and conserving or enhancing the natural features of the site.

A Minimised Carbon Dwelling: An example from Blackthorn Farm, West Dorset

This timber-framed off-grid dwelling sitting on stilts and resting on wooden foundations, is insulated with wool, and is orientated to make maximum use of natural light, whilst being shaded from the heat of the summer by the veranda. Photovoltaics power all electricity needs. Cooking is done on a wood-burning range, which also heats the house and provides hot water in the winter. Summer hot water comes from roof mounted solar-thermal panels. There is an indoor composting toilet. Use of mains water is greatly reduced by rainwater harvesting from rooftops and is used for growing crops. The visual impact of the house is reduced by the turf roof and use of local natural timber.

Monitoring: Essential criteria

3.107 The targets and indicators for monitoring the essential criteria are:

- Target: That domestic and ancillary buildings are zero carbon in construction and use.

  Indicators: *Achievement of zero carbon assessment for all buildings requiring Building Regulations approval in construction as described in this guidance*

  Achievement of zero carbon assessment for all buildings requiring Building Regulations approval in use as described in this guidance

- Target: That structures requiring Building Regulations approval obtain this approval.

  Indicators: *All structures requiring Building Regulations approval are identified in the proposals.*

  This approval is obtained either before or during construction.

- Target: That all structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.

  Indicators: *Specification of how each structure identified for removal in the Exit Strategy is capable of removal with low environmental impact.*

Monitoring: Contributory criteria

3.108 The targets and indicators for monitoring the contributory criteria are:

- Target: That the construction of structures should make as much use of recycled materials as possible so long as this does not affect their ability to satisfy the essential criteria.

  Indicator: *Detailed summary of use of recycled materials in construction of*

structures.

- Target: That existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact due to their siting

  Indicator: Explanatory statement on the re-use of any existing buildings.

Ecological Footprint Analysis: Data needs

3.109 Data that need to be collected to inform the Ecological Footprint Analysis (EFA) are:

- Footprint area of residential buildings.
- Capital costs of materials purchased for build.

Other Footprints: Data needs

- Footprint area of ancillary buildings
- Capital costs of materials purchased for build.

Community Impact Assessment

What TAN 6 requires

- Identification of the potential impacts on the host community (both positive and negative) and the identification and implementation of any mitigation measures that may be necessary [4.16.1 & 4.21.1]

Objectives

3.110 One Planet Development in the open countryside should not impact negatively on neighbouring communities. Positive impacts should be encouraged and negative impacts mitigated. All likely impacts of One Planet Development proposals on the local community should be assessed.

Components

Social

3.111 One Planet Development can contribute to existing communities through children attending local schools, residents supporting local groups, clubs and events and so on. They can also offer local communities social opportunities such as open days, footpaths and other access, and by hosting local events.

Economic

3.112 Residents of One Planet Development and their visitors can support the local economy by shopping locally and by using other local businesses. They can also contribute to the local economy by selling food and other produce, but may have a negative impact if this provides direct competition with existing local producers. The selling of food and fuel to local communities can have direct positive impacts on the Ecological Footprints of residents of these communities. Such 'offsetting' cannot reasonably be quantified but should nevertheless be taken into account in the statement of overall Ecological Footprint (see para 2.11 and Chapter 4 for further information on this).

Community impacts **Box 12**

The community impacts of One Planet Development in the open countryside, both positive and negative, can vary greatly depending on the relative location of the OPD site. For an OPD which is relatively isolated from settlements both types of impact will probably be reduced. However, where an OPD is located close to or adjacent to an existing settlement impacts are inevitable and here there is a strong imperative to plan to maximise positive impacts and minimise negative impacts as part of working out the design and detail of the OPD proposals.

Where an OPD is adjacent to an existing settlement, and will effectively become part of it, the existing community should be fully involved in the formulation of the proposals.

Essential criteria

3.113 The essential criteria are that:

- There is a thorough assessment of all impacts of the proposals on neighbouring communities. One Planet Development in the open countryside should not impact negatively on neighbouring communities.
- Any negative impacts are mitigated.

Contributory criteria

3.114 The contributory criteria are that:

- OPD children attend local schools and residents support local groups, clubs and events.
- There are open days, permissive footpaths and other access, as well as the hosting of local events on-site.
- Residents shop locally and use other local businesses.
- Residents sell food and other produce locally.

Monitoring: Essential criteria

3.115 The targets and indicators for monitoring the essential criteria are:

- Target: That community impacts are thoroughly assessed and there are measures in place to mitigate any negative impacts.

  Indicators: *Annual monitoring of community impacts.*

  Implementation of mitigation measures to address any negative impacts.

Monitoring: Contributory criteria

3.116 The targets and indicators for monitoring the contributory criteria are:

- Target: That all positive community impacts are fostered and recorded.

  Indicator: *All positive community impacts are fostered and recorded.*

Ecological Footprint Analysis: Data needs

None.

Other Footprints: Data needs

3.117 Data that need to be collected to inform the identification of Other Footprints include:

- quantity / value of local food for local consumption.
- quantity / value of other grown produce including fuel for local consumption.

Fivepenny Farm, Dorset; Is home to the collectively owned processing barn of the Peasant Evolution Producers' Co-Operative. It contains a kitchen, cutting room, dairy, apple press, cider cellar, stores, packing area and large event space. The barn and Co-operative have provided a new focus and boost for the network of small sustainable producers in the area.

Lammas, Pembrokeshire: The community hub building is nearing completion and will be a focal point for the community and for events involving the local area. It is mainly built from locally sourced timber and stone, and incorporates renewable energy systems for electricity and heating.

Transport assessment and travel plan

What TAN 6 requires:

- Planning applications should be accompanied by an assessment of the traffic generated from the use of the site by its residents and visitors [4.22.1]
- The travel plan accompanying the planning application should clearly identify a preference for low or zero carbon modes of transport including walking, cycling and car sharing schemes [4.22.1].

Objectives

3.118 All developments generate transport movements, either those relating to the people living on site or from people and goods coming to the site. One Planet Developments should aim to significantly reduce the environmental impacts of transport, both by reducing the need to travel and favouring low carbon modes of transport.

Components

3.119 Three types of activity on site will generate transport movements: those of residents, enterprises on site and those of visitors.

Residents

3.120 One Planet Development in the open countryside is intended to be broadly self-sustaining, and so there should be a significantly reduced need for residents to travel off site, and for many types of goods to be brought to the site. In particular commuting trips should be low or absent.

3.121 OPD residents can also take proactive steps to reduce transport impacts, such as restricting the number of vehicles, sharing vehicles, favouring low or zero carbon modes of transport, making use of delivery services rather than travelling to suppliers, and using public transport when possible.

3.122 If residents do not minimise their use of high-carbon transport this will ultimately affect their EFA, and make achieving a low Ecological Footprint much harder.

Enterprises

3.123 On site enterprises will generate transport movements ranging from local deliveries of produce such as a box scheme through to receipt of goods and supplies from off-site and delivering goods to more distant locations such as processed food or craft items. All of these need to be accounted for, as some could significantly increase the overall transport impact of the site. Enterprises which are well embedded in the local economy will generally have lower transport impacts.

Visitors

3.124 The transport associated with visitors has three important components: the number of trips, the modes of transport concerned, and the distance travelled to the site. Sites might receive regular visits from local schools. They might organise courses which attract people from a wide range of origins. Visitors might drop in on an on-going basis, or only for pre-arranged open days. All visitors need to be accounted for, as some could significantly increase the overall transport impact of the site and will be a consideration in the assessment of overall Ecological Footprint.

Transport Assessments

3.125 Transport Assessments provide the information necessary to assess the suitability of an application in terms of travel demand and impact. They are usually only required for relatively large proposals such as developments of over 100 houses, large new shops, factories or schools. Although One Planet Development in the open countryside will rarely be of this scale, transport assessments are required because OPD should have a significantly reduced transport impact, and this needs to be assessed.

3.126 The Transport Assessment should cover all transport movements likely to be generated by all three types of activity on site. It should detail for each component the purposes, distances, modes, and any transport sharing for trips generated.

3.127 Full guidance on Transport Assessments is contained in TAN 18. Here it has been adapted for the smaller scale of OPD. Transport assessments for One Planet Developments in the open countryside should contain:

- A **transport baseline** made up of a site baseline (collected as part of the overall baseline for the development) and describing the current traffic generated by the site prior to the OPD proposals, and the site's transport connections, such as to bus routes.
- A **description** of the OPD proposal's transport generating elements.
- An **evaluation** of the transport impacts of the proposals, including number of trips, accessibility by different modes (e.g. accessibility to public transport), the size and extent of the likely catchment area, and prediction of numbers travelling by each mode. The residential EFA at the time of first occupation should contribute to this.
- A **strategy** for reducing and mitigating transport impacts including proposed

controls through conditions or obligations, and details for monitoring, including via the EFA for the activities of residents.

3.128 Developments which are intended to be 'outward facing' with activities on site that generate or attract a significant number of trips, should be sited sufficiently close to towns or larger villages to support low- and zero-carbon transport to them and / or with easy access to public transport routes, in order to reduce transport impacts.

Travel Plans

3.129 How the transport assessment strategy for the site will be delivered should be expressed in a brief Travel Plan – a sister document to the Transport Assessment. Travel Plans have mostly been used to reduce car travel associated with larger developments. For One Planet Developments they should cover both how use of non-car modes will be maximised and how the overall transport impacts of the site will be reduced.

3.130 The Transport Assessment and Travel Plan may be combined as a single document.

Examples of travel planning **Box 13**

The **Findhorn** settlement in Scotland is not intended to be an OPD but shows how individual's transport impacts can be reduced as a result of living in an ecologically aware community. The 2006 assessment of the Ecological Footprint of the Findhorn community in Scotland, which included 58 of around 300 residents, found that car travel per capita was just 6% of the Scottish average. Of a total Ecological Footprint of 2.71gha, 0.37gha was derived from transport – 37% of the Scottish average (even though Findhorn residents are more likely to fly and less likely to use other modes of powered transport). The travel footprint of visitors to the site adds around another 0.75gha per capita.

There is a detailed Traffic Management Plan linked to the management plan for the **Lammas** development (a planned OPD community). This includes measures to minimise traffic including:

- Residents required to share vehicles
- A Society minibus providing a link with local towns
- The minibus also available for additional trips / one-off opportunities
- Co-ordination of all deliveries to and from the site
- Use of financial incentives to encourage visitors to travel by public transport
- All traffic monitored and reviewed on an annual basis.

During 2010, the first year of monitoring, residents were charged £200 to operate vehicles from the site, and 9,200 total trips were made to / from the site against the maximum set in the Traffic Management Plan of 25,200 for the first year and 17,800 thereafter. A traffic counter has now been installed at the site entrance.

The average footprint for all residents on site from transport was 0.07gha.

Essential criteria

3.131 The essential criteria are that:

- The management plan must be accompanied by a Transport Assessment and Travel Plan (which may be combined).
- Overall the development should achieve a significant reduction in transport impacts from all activities on site (residents, enterprises and visitors) in comparison to what would be the 'norm' for such activities.
- There should be detailed monitoring of all trips to and from the site in terms of purposes, distances, modes, and any transport sharing.

Contributory criteria

3.132 The contributory criteria are that:

- the use of low and zero carbon modes of transport should be maximised.
- On site vehicle numbers should be controlled and vehicle pools used for One Planet Developments of more than one household.
- Connections between the site and local suppliers and customers for goods and services requiring travel, should be maximised opposed to those at a greater distance.
- Visitor travel should be the subject of proactive management to reduce transport impacts.

Monitoring

3.133 Transport to and from the site, for all activities on it, should be monitored in detail. Monitoring results should be used to improve measures to reduce transport impacts. Over the longer term monitoring is essential to inform whether the measures are working.

Monitoring: Essential criteria

3.134 The targets and indicators for monitoring the essential criteria are:

- Target: That there is a significant reduction in transport impacts from all activities on site in comparison with 'typical' levels for the number of occupants and activities on site.

  Indicators: *Annual monitoring of all trips to and from the site by purpose, distance, mode, and any transport sharing.*

  Annual assessment of the transport impact of the site against the Transport Assessment Strategy and Travel Plan.

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That there is maximisation of use of low and zero carbon modes of travel.

  Indicator: *Annual monitoring of use of low and zero carbon modes of transport*

(part of annual monitoring of all trips).

- Target: That there is a reduction in on-site vehicles through the use of vehicle pools.

  Indicator: Annual monitoring of vehicle numbers and use of vehicle pools.

- Target: That there is maximum use of local suppliers and customers over those from a greater distance

  Indicator: Annual monitoring of local suppliers and customers.

- Target: That there is pro-active management of visitor travel.

  Indicator: Annual monitoring of visitor travel.

Ecological Footprint Analysis: Data needs

3.135 Data that need to be collected to inform the Ecological Footprint Analysis are:

- The domestic mileage travelled annually, broken down by mode of transport e.g. domestic car/van, bus, train, ferry, plane or motor bike.
- Type of fuels used for domestic vehicles.
- The average occupancy of the vehicle(s) used on domestic transport use.
- Amount spent on fuel purchased for domestic transport use.

Other Footprints: Data needs

3.136 Data that need to be collected to inform the identification of Other Footprints include:

- The mileage travelled annually for other (non domestic) purposes (itemised), broken down by mode of transport e.g. domestic car/van, bus, train, ferry, plane or motor bike.
- Type of fuels used for vehicles used for these other purposes.
- The average occupancy of the vehicles used for these other purposes.
- Amount spent on fuel purchased for these other purposes.

4. ECOLOGICAL FOOTPRINT ANALYSIS (EFA)

Introduction

4.1 An Ecological Footprint Analysis (EFA) is a 'snapshot' indicator which demonstrates the human demand on the finite biological resources of our planet, expressed as the per person area of land individuals or populations require to resource their way of life. It can be used to present footprints or to predict future footprints based on assumptions or scenarios, such as the likely footprint of a proposed One Planet Development.

4.2 The Ecological Footprinting methodology is well developed. There are international Ecological Footprint Standards, which were adopted in 2006 to ensure that Footprint studies are both credible and consistent. An Ecological Footprint Analysis (EFA) involves collecting data about a range of activities such as transport, energy use, and expenditure on materials and products consumed by the subject. The impacts of these activities can be converted into a common currency of global hectares (gha), using proprietary tools or analysis from first principles.

4.3 The proprietary tools available are all derived from high level analysis of the movement of commodities and services between different sectors of the economy based on high level statistical information. They therefore reflect average consumption of products and services delivered via mainstream supply chains as consumed by the majority of the population. Thus to be used for the analysis of One Planet Developments, which are not 'average', adaptations can be made to these tools by suitably experienced users. These adaptations reflect the differences between the products and services consumed by One Planet Development applicants and residents and those consumed by typical UK citizens. Examples include the difference between:

- conventional industrial agriculture (both organic and non-organic) and very low input agricultural systems
- energy from mains electricity via the grid compared to that from on-site renewables
- miles travelled in a conventionally fuelled vehicle compared to that fuelled by locally reclaimed and processed biofuels
- purchase of new clothes as opposed to purchase of second-hand clothing.

4.4 There are a number of differing free to use simplified proprietary software systems / tools available to conduct Ecological Footprint Analysis of individuals, families and small communities in the UK. However, they lack the sensitivity and detailed depth of analysis required to generate meaningful results for One Planet Development. Therefore a bespoke tool has been developed alongside this guidance for the use of One Planet Developers, although there is no requirement that this tool has to be used in the place of others. This bespoke tool is described below.

The OPD EFA Tool

Overview

4.5 The tool has been derived from the Stockholm Environment Institute (SEI) REAP 2 tool. The REAP 2 tool was used to derive the average footprint of Wales

in 2004 upon which the TAN 6 footprint target was based. It is available to download from the TAN 6 page of the Welsh Government website.

4.6 The tool is based largely upon collecting information on expenditure as this is the most practical way for One Planet Developers to record the external resources they use. The tool relies on the accuracy and verification of the data being used, and on a good working understanding of Ecological Footprint Analysis in order to interpret its results. This means that either the applicant or their agent should be competent to do this and that similarly competent persons are used to check the results of the tool by local planning authorities should they wish this to be done.

4.7 The EFA is for the domestic and subsistence activities of residents. In line with established footprinting practice the impacts of business activities of One Planet Developments are 'owned' by the consumers of the business's products and services. Likewise the impacts of the personal consumption by volunteers or visitors to the project are 'owned' by their footprints. This requires that existing and potential One Planet residents differentiate between their own domestic/ household consumption and that of any business that they run in order to avoid falsely inflating their footprint. It is realised that this can be more difficult in the highly integrated lifestyles typical of One Planet Development but is possible with clear record keeping.

4.8 The tool targets common features of One Planet Development, such as small scale integrated intensive farming for local and home consumption and other aspects of more self-sufficient lifestyles. There is a clear correlation between the lower consuming, lower energy lifestyles of One Planet Developments and lower Ecological Footprints, as demonstrated by published studies. The tool is based on what is already known about the footprints of low impact lifestyles and existing One Planet Developments. Where assumptions cannot be verified these have not been included. The Tool is therefore likely to be relatively conservative in its results.

4.9 The data gathering and verification of Ecological Footprint data needs to be practical. As the data required for the EFA principally concerns expenditure, residents should use a balance sheet approach, laying out domestic income against expenditure and savings, and thus accounting for where they have bought external resources (energy, goods and services) into their household. *Income has to balance against expenditure and savings in order to check that all energy, materials and services used in the year have been included in the calculations.*

Using the Tool

4.9 There are specific instructions for using the tool available to download with it. This is a summary of these instructions.

4.10 As indicated above, the tool assesses the domestic per capita Ecological Footprint of a One Planet Development. It is therefore important to separate expenditure, travel and energy used domestically from any expenditure, travel and energy use associated with any business activities. Anything used by volunteers, or guests should also not be counted in the domestic figures.

4.11 If the development involves a single household, figures should be entered for the whole household. The calculator divides the total into a per capita figure.

4.12 Conversely, if the development involves a group of households, a separate spreadsheet should be completed for each household to obtain individual results. One the basis of these results an average per capita Environmental Footprint can be calculated for the development as a whole.

4.13 At the time that a planning application is being made, the tool requires the following sets of data:

- **existing household expenditure** – for the past 12 months - this is not compulsory but is recommended as it gives a **baseline** which can be used to check how feasible the year five estimate is
- **estimated household expenditure at first habitation**[8] – based on the plan for the implementation of the development and when first habitation will occur – this is compulsory
- **estimated household expenditure at year five after first habitation** – based on the details of the proposals to estimate the year five footprint – this is compulsory (see para 2.13)

4.14 For on-going monitoring, the tool will also be used for the EFA review at year three (36 months) and year five (60 months) after first habitation. It will also be used at the same timespans thereafter (i.e. years 8,10,13,15 and so on) (see paras 5.3 – 5.4).

- **actual household expenditure at year three** – progress towards the year five footprint is checked at year three – this is compulsory
- **actual household expenditure at year five** – verification of the year five footprint – this is compulsory

4.15 For each estimate the following sets of data are required:

- **general information**
  - number of people in household
  - household income (for existing footprint and when years three and five are reached)
- **energy use** – of various sorts in kWh
- **housing and infrastructure** – mortgages, rents, capital investments, repairs, cleaning and mains services
- **travel and transportation** – modes, costs, mileages
- **food purchased** – by type, including eating out
- **food produced on site for domestic use** – seeds, inputs, equipment
- **consumable goods** – of all types, e.g. clothing, furniture, electrical goods
- **services** - of all types, e.g. ICT, insurance, professional services, accommodation
- **all other transactions** – savings and spending on all fuels.

4.16 The results of the analysis are displayed at the top of the data entry sheet. A detailed breakdown of the results is shown on the separate sheet, which shows

8 when the site becomes the sole residence of the household

how the footprint is made up.

Interpreting the results

4.17 Experience to date has shown that EFA results have a + / - 15% sensitivity. Although the Environmental Footprint of an OPD proposal or development is a centrally important summary indicator of its environmental impact it is not an absolute measure. The acceptability of an OPD proposal is found in the combination of how it satisfies the essential and addresses the contributory criteria, its Ecological Footprint, and the environmental attributes and impacts of specific aspects of the proposal. As with many planning decisions, it is a matter of taking all material considerations together and forming a view based on all of them in combination. Nevertheless, following a conventional UK lifestyle, few people would get close to the low footprint required by TAN 6 for One Planet Development and therefore it does provide a very useful check on the type of development that is being proposed.

4.18 The estimate of the Ecological Footprint at first habitation is required as a check that the early stages of the One Planet Development reflect the a low impact ethos. An initial reduction of some 25% of the National Average should be expected (3.6 gha). However, during the establishment of a One Planet Development the new buildings and other structures, works to land and the provision of infrastructure items to serve domestic purposes will be counted in the residents' Ecological Footprints. Where these are once-off impacts, necessary for the One Planet Development, although they should be accounted for they should not be taken as being part of the 'typical' annual domestic footprint for residents of the development with which policy is concerned.

4.19 The achievement of an Ecological Footprint of 2.4 gha by year five is a demanding requirement, but one which One Planet Development should be able to meet though its low impact attributes. This figure represents 50% of the average 2004 per capita Welsh Ecological Footprint (which stood at 4.88 gha per capita). Since this time, increased national expenditure combined with changes to the REAP 2 model, mean that the Welsh per capita Ecological Footprint is now over 5 gha. Such changes in the national data should be taken into account when assessing OPD Ecological Footprints.

4.20 Similarly, there are aspects of the national Ecological Footprint figure, forming part of the Ecological Footprint Analysis, which OPD residents cannot be expected to reduce by 50% as they are large-scale activities over which OPD residents can exert no influence. These include government expenditure on services, maintenance, and new projects outside the influence of any OPD activities but which nevertheless are carried across into the EFA (covered under the Public Services and Capital Investments elements of the EFA tool). How these elements are dealt with in the OPD EFA tool is explained in greater detail in Box 14 below.

4.21 Overall, at the moment, the ultimate target of 1.88 gha per person is difficult to achieve for One Planet Development. This also needs to be allowed for – the ability to move below 2.4 gha in time, for now, is more realistic than achieving 1.88 gha.

Box 14

The Capital Investment and Public Services aspects of the Footprint 'calculator'

The standard REAP 2 tool used in Wales has two elements: Capital Investments and Public Services contributions over which an OPD resident can exert no influence. Within the EFA tool therefore these elements have been reduced by 50% on the basis that:

1. The 2.44 gha (quoted in TAN 6) was derived by dividing the then Welsh footprint of 4.88 by two, on the assumption that OPD residents should be able to halve the average Welsh footprint.
2. However OPD residents can do nothing to halve the Capital Investments and Public Services contribution to their footprints as these are simply accrued by being a resident of Wales.
3. On this basis, the calculator 'automatically' halves the Capital Investments and Public Services contribution to their footprints (but see 5 below).
4. **Without** doing this the gha figure which OPD residents would have to achieve, with that element of their footprint over which they **do** have influence to reduce by 50%, is effectively 2.44 minus 0.92 (the 100% figure in the Wales footprint for Capital Investments and Public Services) = 1.52. As 2.4 gha is a stiff challenge and 1.88 near impossible at the moment, an effective 1.52 by year five (or indeed year three) is very challenging.
5. Therefore, to be precise, the calculator does two things (a) it removes those items from the Capital Investment category which simply do not apply to OPD dwellers, such as capital investment in housing - i.e. they build their own house; and (b) it reduces the remaining sum by 50% giving a total for the Capital Investment and Public Services categories of 0.38.
6. Using this figure, an OPD dweller has influence over 2.44 minus 0.38 = 2.06 which is still very challenging for the early years of OPD living but is more likely to be achieved compared to 1.52.

The only footprint in the 'calculator' that allows for the full 100% of the Capital Investment and Public Services part of the footprint calculation is in the (optional) EFA of the applicant's footprint prior to embarking on an OPD lifestyle. In other words the 50% reduction relates to the calculation of any Ecological Footprint of an OPD occupant at any time.

This methodology is robust to future changes in the average Ecological Footprint for Welsh citizens. As the average Ecological Footprint changes over time, so will the contribution of Capital Investments and Public Services also change within it. The assumed 50% reduction can then be applied to the changed average Ecological Footprint for Welsh citizens.

4.22 The Ecological Footprint estimate for year five is an important indicator at the time a One Planet Development planning application is submitted If it is well above the 2.4 gha required by TAN 6, taking all of the factors above into consideration, then the proposal cannot fulfil this important requirement of One

Planet Development and should be rejected. If it is below 2.4 gha then the requirement is met. If it is close to 2.4 gha (up to 2.75 – the 15% sensitivity) the proposal may also be acceptable when considered in the round. In all cases, it is important to examine the detail of how the footprint is made up, as this can confirm the validity of the footprint, explain why it might be close to but over 2.4 gha but nonetheless acceptable, or highlight where a proposal needs to improve to achieve an acceptable footprint.

4.23 In addition, the baseline can also provide important context to the evaluation of the year five footprint. If a proposal is permitted, the year three EFA is compulsory as is the year five EFA. Subsequent EFAs will be required thereafter at these regular intervals as part of the wider monitoring cycle (para 5.4). Commentaries on the changes in results will greatly assist their interpretation and evaluation.

Other footprints

4.24 In addition, this guidance prompts for separate consideration of the impact of One Planet Developments on the footprints of others. There is a mixture of potential positive and negative impacts here (see Box 2).

4.25. These other footprint impacts cannot be quantified in the same way as the domestic footprints of OPD residents, as there is no proven tool for this. What is required is that all other footprint impacts are itemised and assessed as additional impacts of the One Planet Development, as they remain material considerations for planning decisions. Small or uncertain impacts should not be given much weight – what is important is that any impacts of significant scale, positive or negative, are taken into account in the overall assessment of environmental impacts.

5. PHASING, MONITORING AND EXIT STRATEGY

Phasing of proposals

5.1 A programme that sets out the phasing of the identified proposals over the first five years of the site's development will be an essential part of the management plan. This will allow the local planning authority to understand when different aspects of the proposals will be carried out. Critical aspects that will need to be covered in the programme are:

- when management of the site will start
- when the household(s) will start to live on site
- linked to the above, any need for temporary accommodation and how this will be provided
- the building programme for household accommodation
- the building programme for ancillary buildings such as barns and for shared community facilities in the case of planned communities
- dates by which it is proposed to achieve each of the essential criteria for One Planet Development in the open countryside (para 2.7).

Monitoring

5.2 A statement of monitoring and review forms an integral part of the management plan. The initial proposals will set out the 'promise' of the One Planet Development. This promise has to be fulfilled and verified through monitoring (para 2.21).

5.3 The phased requirements for monitoring will be:

- an annual monitoring report, reporting on the criteria being monitored (as set out in Chapter 3);
- as part of the annual monitoring report, a short commentary on changes made since the previous year that are likely to increase or decrease the Ecological Footprint of the OPD household(s) and other footprints (Chapter 4), equivalent to a short EFA progress report.
- a re-run of the Ecological Footprint Analysis in year three (36 months) after habitation of the site to assess whether the Ecological Footprint of the site is on course to meet the identified target of 2.4 global hectares per person (gha) by year five after first habitation on the site.
- a resubmission of the Management Plan in year five after first habitation accompanied by a separate EFA that identifies if the target of 2.4 gha has been achieved.

5.4 Thereafter this sequence should be retained with (a) an annual monitoring report and accompanying EFA progress report; (b) a full EFA in the third year (36 months) after the last management plan; and (c) a revised management plan and accompanying EFA at year 5 (60 months since submission of the last management plan). In each case the EFA should indicate an Ecological Footprint

below 2.4 global hectares per person.

5.5 The first Management Plan should contain an undertaking that the above will be produced.

Annual monitoring report

5.6 In Chapter 3, the main management plan elements, provide a standardised approach for monitoring against key targets linked to the essential criteria for One Planet Development. Progress against these targets should be identified in an Annual Monitoring Report.

5.7 The Annual Monitoring Report should:

- Indicate progress against identified targets including the carbon performance of buildings and their use (see the Table below).
- Incorporate a short EFA progress report on potential changes to the EFA (see para 5.3). In years 3 and 5 this will be supported by a full EFA.
- Identify any emerging problems (i.e. where targets are failing to be met or where the EFA is showing an upward trajectory in gha) and measures to remedy them.
- Provide clear evidence that the residential use continues to be clearly linked to the management of the land.

5.8 The first annual monitoring report should be produced at the end of 12 months following first habitation of the site, and then with annual submissions on that date thereafter.

Target	Indicator
LAND BASED ACTIVITY: MONITORING ESSENTIAL CRITERIA	
The minimum food needs (at least 65%) of all occupants are met from produce grown and reared on the site or purchased using income derived from other products grown and reared on the site	(a) Annual reporting of food production consumed by household. (b) Annual reporting of spend on other food.
The minimum income needs of all occupants are met from income derived from land use activities on the site.	(a) Annual household income and costs reporting.
Income derived from other land-based enterprises, such as training and education courses or consultancy, remain subsidiary to the primary activity of growing and rearing produce.	(a) Annual reporting on the total value of produce grown and reared on the site compared with income derived from other land-based enterprises.
The number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.	(a) Annual reporting on number of occupants by household and their roles on site.
LAND BASED ACTIVITY: MONITORING CONTRIBUTORY CRITERIA	
The land based enterprise provides food and other products to local markets, reducing other local footprints.	(a) Annual reporting of sale volumes and market areas by each on-site enterprise.
Facilities for processing produce are made available	(a) Annual reporting on use of

Target	Indicator
to other local producers.	processing facilities by others.
Training / courses / consultancy, as components of the land based enterprise, share best practice in sustainable land based activities with the wider community.	(a) Annual reporting on training and consultancy activities.
LAND MANAGEMENT: MONITORING ESSENTIAL CRITERIA	
All existing semi-natural habitats are in favourable condition.	(a) Spread of characteristic species of that habitat against an established baseline. (b) Decline in non-characteristic / commercial agricultural species within each habitat (seek advice of Wildlife Trust).
All identified cultural heritage features are maintained in good condition.	(a) No cultivation or soil erosion over buried archaeological sites and historic earthworks. (b) Scrub and trees removed over buried archaeological sites and historic earthworks. (c) Above ground historic/ cultural features stabilised and scrub / trees removed.
There is an increase in the number / area / length of traditional characteristic landscape features and all are under appropriate traditional management.	(a) Increase in the number / area / length of x landscape feature. (b) Increase in the number / area / length of y landscape feature.
LAND MANAGEMENT: MONITORING CONTRIBUTORY CRITERIA	
(Named) semi-natural habitat(s) is/are extended / created.	(a) Area of new habitat. (b) Spread of characteristic species of that habitat.
There is an increase in the population of farmland birds on the site.	(a) Number of breeding farmland birds on the site against an established baseline.
There is an increase in the population of honey bees.	(a) Number of active bee hives on site.
ENERGY AND WATER: MONITORING ESSENTIAL CRITERIA	
All of the **energy needs** shall be met from sources of renewable energy on site.	a) Annual reporting on use of renewable energy generated on-site (as percentage of energy needs). b) Annual reporting on use of all non-renewable fuels (included grid connected electricity), recorded in terms of use (what for) and amount (quantity). c) Annual reporting on quantity of electricity exported to the grid and imported from the grid.
All **water needs** are met from water available on-site (unless there is a more sustainable alternative).	a) Annual reporting on use of water sources (amount used from each source), including abstraction from water bodies (surface and ground water). b) Annual reporting on ground and surface water levels (reported every

Target	Indicator
	month).
WASTE: MONITORING ESSENTIAL CRITERIA	
All biodegradable waste produced on site will be assimilated on site in environmentally sustainable ways.	a) Annual reporting on quantity of all waste production by types of waste and sources - domestic and other (specified). b) Annual reporting on quantity of on-site waste assimilation and off-site waste disposal.
Only exception to above is occasional off-site disposal of small amounts of non-biodegradable waste items which cannot be assimilated on site that arise from things used on site wearing out or breaking irreparably.	
All waste handling and assimilation on site must comply with Environment Agency guidelines.	a) Annual statement of compliance with Environment Agency guidelines.
WASTE: MONITORING CONTRIBUTORY CRITERIA	
The re-use of organic waste on site should increase overall site fertility and productivity, so long as this is not at the expense of important semi-natural habitats dependent on low soil fertility.	a) Addressed in annual reporting of on-site waste assimilation (see above).
ZERO CARBON BUILDINGS: MONITORING ESSENTIAL CRITERIA	
That domestic and ancillary buildings are zero carbon in construction and use.	a) Achievement of zero carbon assessment for all buildings requiring Building Regulations in construction, as described in this guidance. b) Achievement of zero carbon assessment for all buildings requiring Building Regulations in use, as described in this guidance.
All structures requiring building regulations approval obtain this approval.	a) All structures requiring building regulations approval are identified in the proposals b) This approval is obtained either before or during construction.
All structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.	a) Specification of how each structure identified for removal in the Exit Strategy is capable of removal with low environmental impact.
ZERO CARBON BUILDINGS: MONITORING CONTRIBUTORY CRITERIA	
The construction of structures should make as much use of recycled materials as possible so long as this does not affect their ability to satisfy the essential criteria.	a) Detailed summary of use of recycled materials in construction of structures.
Existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact due to their siting.	a)Explanatory statement on the re-use of any existing buildings.
COMMUNITY IMPACT ASSESSMENT: MONITORING ESSENTIAL CRITERIA	
Community impacts are thoroughly assessed and there are measures in place to mitigate any negative impacts.	a) Annual monitoring of community impacts. b) Implementation of mitigation measures to address any negative

Target	Indicator
	impacts.
COMMUNITY IMPACT ASSESSMENT: MONITORING CONTRIBUTORY CRITERIA	
All positive community impacts are fostered and recorded.	a) All positive community impacts are fostered and recorded.
TRANSPORT ASSESSMENT AND TRAVEL PLAN: MONITORING ESSENTIAL CRITERIA	
There is a significant reduction in transport impacts from all activities on site in comparison with 'typical' levels for the number of occupants and activities on site.	a) Annual monitoring of all trips to and from the site by purpose, distance, mode, and any transport sharing. b) Annual assessment of the transport impact of the site against the Transport Assessment Strategy and Travel Plan.
TRANSPORT ASSESSMENT AND TRAVEL PLAN: MONITORING CONTRIBUTORY CRITERIA	
There is maximisation of use of low and zero carbon modes of travel.	a) Annual monitoring of use of low and zero carbon modes of transport (part of annual monitoring of all trips).
There is a reduction in on-site vehicles through the use of vehicle pools.	a) Annual monitoring of vehicle numbers and use of vehicle pools.
There is maximum use of local suppliers and customers over those from a greater distance.	a) Annual monitoring of local suppliers and customers.
There is pro-active management of visitor travel.	a) Annual monitoring of visitor travel.

Responding to emerging problems – red and yellow cards

5.9 Most identified problems will not be critical to the future of the site and will need to be remedied by the next monitoring report. Some will be critical though, for example, those that threaten achievement of the essential criteria for One Planet Developments or undermine an EFA of 2.4 gha or less. These will require attention in a shorter, specified timescale.

5.10 The site should not carry more than a small number of critical problems at any one time, although more non critical problems would be acceptable. These problems may be described using a system of yellow ▫ and red ▪ cards – too many yellow cards become a red card. The management plan should identify what would be considered critical failures (red cards) and specify how quickly they should be dealt with.

Exit Strategy

5.11 The management plan will need to identify what would constitute a failure of the site as a whole. This would be a failure to achieve one or more of the essential characteristics of One Planet Development in the open countryside (para 1.9) over a period of two years without instituting clear and effective measures to address the identified problems.

5.12 All management plans for OPD proposals in the open countryside should

contain an 'Exit Strategy' should the site fail as a whole. This Exit Strategy should lay out how the development and associated land use changes would be removed such that the use of the site is restored to its previous use (or another agreed use) and the site is left in the same or better condition than before the development took place.

5.13 Some aspects of the development may be bringing very positive benefits and these should remain as part of any Exit Strategy. These may include planting and landscaping, habitat restoration and creation and management to restore features of cultural heritage interest. In addition, new agricultural buildings and tracks may benefit the land if restored to its previous use and therefore may be suitable for retention (seek the advice of the planning authority on this matter).

5.14 Nevertheless, aspects that should generally be expected to be removed include:

- All residential use and associated buildings.
- All other elements of the development which would otherwise cause harm or potentially become derelict should they remain.

5.15 Overall, the adequacy of the Exit Strategy should be judged in terms of:

- Whether it would result in the site being left in the same or better condition than before the development took place.
- The feasibility of the operations required – these should be capable of being done relatively quickly and without incurring significant expense. If this is not the case then the implication is that it is not One Planet Development.

5.16 It follows, then, that the design of One Planet Development in the open countryside will have to take these requirements into account. In any event this should be in line with OPD's intrinsically low impact nature.

Enforcement

5.17 Ultimately failures to fulfil the management plan, if not corrected as the management plan envisages, can be addressed by planning enforcement measures. Where a s106 agreement has been used this will provide the most effective way to address failures to fulfil the management plan, and to trigger the Exit Strategy if necessary. Where conditions have been used rather than a s106 agreement, they should have been worded to allow such action to be taken as a breach of those conditions.

Five year management plan review

5.18 The nature of One Planet Developments is that they are likely to evolve. It makes sense, therefore, that the management plan is reviewed every five years (TAN 6 4.26.1). Review of the management plan is an opportunity to harness further improvement in the environmental performance of the site by learning (from the Annual Monitoring Reports and the Environmental Footprint Analyses) what has worked well, less well, and to introduce innovation from elsewhere (paras

2.23– 2.24), as well as responding to changing circumstances.

5.19 The revised Management Plan should continue to identify how the qualifying criteria and associated EFA will be met. A revised management plan should be produced every five years.

6. THE PLANNING PROCESS

6.1 This section provides a brief recap of the planning process for One Planet Development in the open countryside. This guidance primarily deals with putting your management plan together and making sure that you have satisfied the qualifying criteria (para 2.7) by which One Planet Development in the open countryside is evaluated.

6.2 Pre-application discussions with the local planning authority (LPA) will probably play an important role in refining your proposals (para 1.14). **Figure 3** below shows that this is the first part of the planning process.

6.3 When you have finalised your proposals, a planning application can be made – the second part of the process. As part of reaching a decision on the application, the LPA will consult a range of bodies such as the Parish Council, the Highways Authority, landscape and conservation organisations and others, and also the immediate neighbours of the site. The proposals will also be advertised in a local paper and via a site notice, so other people (third parties) may also give the LPA their views on the proposal in the form of a consultation response.

6.4 In order to make their decision the LPA will take into account:

- national policy (set out in Planning Policy Wales and TAN 6)
- local policy (set out in in the local authority development plan)
- this guidance (and any linked guidance)
- consultation responses
- the specific nature of the proposal.

6.5 In broad terms if a proposal satisfies the requirements of policy and clearly meets the qualifying criteria set out in this guidance (para 2.7) it should be allowed. However, as One Planet Development in the open countryside is a relatively complex form of development, its determination will frequently be a matter of some debate. During the application process there is plenty of opportunity for discussion and refinement / amendment of the proposals. It is expected that both 'sides' should keep talking to try and reach a mutually satisfactory outcome.

6.5 The LPA's final decision will be either delegated (to the planning officer) or will be determined by committee. Each LPA has its own rules on this.

6.6 Approval means that the proposals can proceed, though there will usually be conditions to fulfil and maybe a legal agreement to complete. Other requirements will also have to be met such as Building Regulations approval for certain structures.

6.7 If an application is refused the applicant can appeal, where the decision-making process is essentially re-run by a Planning Inspector, with both 'sides' putting their case as to whether the appeal should be refused (the LPA) or allowed (the applicant). It the appeal is refused then there are limited avenues left to take the proposal further.

6.8 Both the LPA and Inspector will clearly record the reasons for a proposal being refused. It may be that the proposal can be revised to overcome these.

Figure 6.1: The Planning Process